ENVIRONMENTAL EVALUATION OF FACILITIES DEVELOPMENT ACTIONS

Wisconsin Department of Transportation

Basic Sheet 1

Project ID 2709-03-00/70	**Project Termini** From: County Q To: County E	**Funding Sources - Check all that apply** ☒ Federal ☒ State ☐ Local
Route Designation (if applicable) Long Truck Route (State) National Highway System (NHS) Route ☒ Yes ☐ No	**Nearest Community** Village of Richfield Town of Polk	**Estimated Project Cost** $19,900,000 (YOE 2018) Real Estate Acquisition Portion of Estimated Cost $3,800,000 (YOE 2016) YOE = Year of Expenditure (3% annual inflation rate assumed for estimates)
Project Name WIS 164, Lovers Lane		
County Washington	**Section-Township-Range** Sections 4, 5, 8, 9, 16, 17, 20, 21, 28, 29, 32, 33 T-9-N, R-19-E Sections 28, 29, 32, 33 T-10-N, R18-E	**Right of Way Acquisition**
Bridge Number(s), if applicable Not applicable	**Scheduled start date** (Operational Planning Meeting (OPM)) October 27, 2010	

Right of Way Acquisition

	Acres
Fee	37.8
TLE	11.7
PLE	0.07

Functional Classification of Existing Route	Urban	Rural
Freeway/Expressway	☐	☐
Principal Arterial	☐	☒
Minor Arterial	☐	☐
Major Collector		☐
Minor Collector		☐
Collector	☐	
Local	☐	☐
No Functional Class	☐	☐

WisDOT Project Classification	
Resurfacing	☐
Pavement Replacement	☐
Reconditioning	☒
Expansion	☐
Bridge Rehabilitation	☐
Bridge Replacement	☐
A "Majors" Project	☐
SHRM	☐
Preventive Maintenance	☐
Safety	☐
Other, Describe	☐

☒ **FHWA Draft Categorical Exclusion, Draft Type 2c, No significant impacts indicated by initial assessment**

☐ **FHWA Final Categorical Exclusion, Type 2c, No significant impacts will occur**

☐ **FHWA Environmental Assessment, Type 3, No significant impacts indicated by initial assessment**

Preparer: [signature] RA Smith National 10/22/13 Project Manager
(Signature) (Company/Org.) (Date) (Title)

Traci Sengelaub 10/22/13 Project Manager
(Signature) (Date) (Title)
(☒ Region ☐ Aeronautics ☐ Rails & Harbors)

(Signature) (Date) (Title)
(Director, Bureau of Technical Services)

Tracy Blankenship 12/10/2013 Maj Bg Proj Mgr
(Signature) (Date) (Title)
(☒ FHWA ☐ FAA ☐ FTA ☐ FRA)

After reviewing and addressing substantive public comments, updating the Preliminary Categorical Exclusion or Environmental Assessment (EA), and coordinating with other agencies, it is determined that this action:

☒ **Will not** significantly affect the quality of the human environment. This document is a Final Categorical Exclusion (Type 2c).

☐ **Will not** significantly affect the quality of the human environment. This document is a Finding of No Significant Impact (FONSI).

☐ **Has potential to** significantly affect the quality of the human environment. Environmental Impact Statement (EIS) required.

Preparer: [signature] RA Smith National 4/2/2015 Project Manager
(Signature) (Company/Org.) (Date) (Title)

[signature] 4/3/2015 PROJECT MANAGER
(Signature) (Date) (Title)
(☒ Region ☐ Aeronautics ☐ Rails & Harbors)

(Signature) (Date) (Title)
(Director, Bureau of Technical Services)

Daniel J. Hott 4/10/15 Projects Team Leader
(Signature) (Date) (Title)
(☒ FHWA ☐ FAA ☐ FTA ☐ FRA)

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway 7.494 Length of This Alternative 7.494

1. Date(s) of Public Notice: December 23, 2013 & January 9, 2014 Milwaukee Journal Sentinel (MJS)
December 24, 2013 & January 9, 2014 West Bend Daily News (WBDN)

Comment period extended: February 5, 2014 Individual notices mailed
February 20, 2014 Milwaukee Journal Sentinel

2. In: (Name of Newspaper): Milwaukee Journal Sentinel and West Bend Daily News

3. Dates Draft Environmental Report was made available to public:

From: December 23, 2013

To: Originally set as February 6, 2014, but the comment period was extended to February 28, 2014

4. Public Hearing:

☐ Was not required, explain: _____
☐ Opportunity was given but no hearing was held.
  ☐ No requests for a public hearing were received.
  ☐ Requests for a public hearing were not substantial.
☒ Was held on January 23, 2014

5. Summarize comments from the Public Hearing and Public Notice of Availability. Characterize public support or opposition to the project. Include a summary of the changes to the environmental document and the project resulting from comments: (Note: Alternatives proposed by the public and subsequently rejected should be identified and the reasons for rejecting them included.)

A. Summarize comments from the Public Hearing and Public Notice of Availability:

A Public Hearing was held on January 23, 2014, at the Friess Lake School located at 1750 Hwy 164 in Hubertus, WI. One hundred twenty nine (129) people registered on the sign-in sheet, not including WisDOT, FHWA, local government, or consultant staff. The Notice of Public Hearing on the Environmental Aspects and Notice of Availability of an Environmental Document including the Affidavit of Publication are presented in Attachment 1.

The comment period was extended at the request of the Highway J Citizen's Group. A public notice was issued and individual letters were mailed to the project mailing list indicating that the public comment period was extended. The public notice along with the Affidavit of Publication are presented in Attachment 2.

During the Public Hearing, eleven (11) people presented public verbal testimony and eight (8) people presented private verbal testimony. One hundred and ten (110) people provided individual written testimony on the night of the Public Hearing, or after the meeting by US mail or email. Some people provided comments in multiple formats; therefore, one person may be counted up to three times. A compilation of the testimony received (public verbal testimony, private verbal testimony, and written testimony) within the public comment period is included in the project Public Hearing Record. A copy of the Project I.D. 2709-03-00 Public Hearing Record is on file at the WisDOT DTSD Bureau of Technical Services – Environmental Services Section (Madison), WisDOT SE Region (Waukesha), and at FHWA (Madison).

The verbal and written testimony included several areas of comments and concerns that were repeated. Each of the topics summarized below in Table A1 is a comment or area of concern that was made by two (2) or more people or parties. Individual comments were also received that concerned specific property use and impacts. Table A1below provides a summary of the comments received and also indicates how many times a similar comment was made. Responses to each of these comments and areas of concern can be found in Attachment 3.

WisDOT certified the public hearing in accordance with 23 USC, Section 128 and 23 CFR 771.111(h)(2)(i)(iv) on March 27, 2014 and reaffirmed certification on March 16, 2015. See Attachment 2 for copies of the certification letters.

Table A1
Public Hearing Comments and Areas of Concern Summary

Comment or Area of Concern	Number of Similar Comments
A. Comments Related to Purpose and Need	
1. Concern that this project is an intermediate step to transition to the expansion from a 2-lane highway to a 4-lane highway	8
2. Concern that traffic counts and projections are inflated	8
3. Crashes decreased when the speed limit was reduced to 45 mph while WIS 164 was used as an alternate route during the US 45 resurfacing	2
4. The road is too dangerous right now	4
B. Comments Related to Alternatives	
1. WIS 164 should be widened from 2-lanes to 4-lanes.	5
2. Disagree that 12 foot wide travel lanes are needed.	2
3. Only need to resurface the roadway and add turn lanes, spot improvements are not needed.	8
4. Post a consistent 45 mph regulatory speed limit on WIS 164 throughout the project corridor.	41
5. Post a 30 mph regulatory speed limit on WIS 164 at the Pleasant Hill Road intersection.	2
6. Eliminate bicycle lanes from the proposed project because they would be too dangerous.	10
7. The addition of turn lanes on WIS 164 at the intersections and cutting the steep hills are good ideas that would help improve safety in the corridor.	2
8. The roundabout proposed at the intersection of WIS 164 and WIS 167 is a bad idea; roundabouts are dangerous near a school and would make the intersection less safe. Traffic signals or 4-way stop control should be reconsidered.	30
9. The roundabout proposed at the intersection of WIS 164 and WIS 167 is a good idea; pedestrian concerns that have been expressed are not an issue because students are not allowed to walk to Friess Lake School.	5
10. Construct the roundabout large enough to accommodate large vehicles.	2
C. Comments Related to the Environmental Document	
1. An Environmental Report (ER) is not the appropriate document type; there would be significant impacts and an Environmental Impact Statement (EIS) is required.	14
2. An Agricultural Impact Statement (AIS) is required.	4
3. A noise analysis is required.	4
4. A groundwater study is required.	2
5. An indirect and cumulative effects analysis is required.	4
D. Comment Related to the Project Funding	
1. $16 million is a waste of money when there is an $8,000 solution available.	5
E. Comment Related to the Public Hearing	
1. The Public Hearing format used for this project is not legal; all testimony should be given as public verbal testimony.	5
2. The Environmental Report was not posted on the website when stated in the Public Hearing Notice.	2
F. Comment Related to Property Acquisition/Impacts	
1. Concern that the project would decrease property values.	7
2. Concern that the project would acquire the same amount of right of way needed to convert the corridor to a four lane highway.	2
3. Concern that too much right of way is being acquired for the project.	4
4. Concern about the loss of trees along the corridor.	5
5. Concern that the project would lead to drainage problems.	2

Table A1 (Continued)

Comment or Area of Concern	Number of Similar Comments
G. Comment Related to General Project Impact Concerns	
1. Widening the lanes and flattening the hills would make the road less safe.	9
H. Comment Related to Environmental Impact Concerns	
1. Cutting down the hills would impact the Kettle Moraine view shed.	4
2. Concerned about environmental corridor impacts.	2
3. Concern about the amount of wetland impacts.	12
4. Concerned that the project would pollute area rivers.	5
5. Concern that this project would increase noise pollution.	3
6. Concern that this project would increase air pollution.	2
7. Concerned about impact to parks.	5
8. Concerned that the project would destroy family farms.	2
9. Concerned that the project would destroy historic properties.	2
10. Concern that the project would impact a potentially historic tunnel that was previously unknown.	1
11. Concerned that the project would impact a Native American burial site.	4
12. Concerned that the project would destroy the rural character of the area.	8

B. Characterize public support or opposition to the project:

Public reaction to the proposed project has been mixed and ranges from full support to complete opposition.

- Local Communities: The Village of Richfield, Washington County and the Town of Polk have expressed support for the project. Village of Richfield and Washington County representatives have attended the Local Officials Meetings, Public Involvement Meetings and the preliminary plan review meetings, and provided input throughout the development of the preferred alternative.
- Emergency Responders: Washington County Sheriff's Department and the Village of Richfield Fire Department have expressed support for the project at the Local Official's Meetings held in advance of each public meeting.
- Businesses: There are two businesses located along the corridor. Both are taverns and restaurants, and both support the preferred alternative.
- Resource Agencies: There has been no opposition expressed from the resource agencies during the preparation of this Environmental Report.
- General Public: Response from the general public has varied greatly. Much of the opposition has been to specific elements of the project such as roundabouts or the removal of buildings at Pleasant Hill Road intersection, but with the understanding that some improvements are needed in the project corridor. There are some that oppose any improvements in the project corridor other than reducing the posted speed limit to 45 mph. Many of the written testimonies opposing the project were from people that live well outside the project corridor. Reponses to the various areas of concern and opposition are addressed in the responses provided to each above and in the Final ER. Some support the project, but feel that even more should be done such as expanding to a 4-lane divided highway. Others simply support the project as proposed acknowledging that safety and traffic flow improvements are needed.
- Property Owners: Response from the property owners immediately adjacent to the project has been similar to the response from the general public. Some property owners are concerned about the potential loss of property, property value, and impacts to specific features on or adjacent to their property such as trees.
- Proposed Relocations: There are three residential properties that would be relocated with the preferred alternative. Although each property owner may not agree fully with the proposed project improvements, the project team has worked to develop informed consent regarding the preferred alternative.
- Organized Action Groups: The Highway J Citizens Group and Waukesha County Environmental Action League (WEAL) oppose any improvements in the project corridor other than reducing the posted speed limit to 45 mph.

C. Summary of the Changes to the Environmental Document and to the Project Resulting from Public Comments:

All of the Basic Sheet and Factor Sheets are included in Attachment 4. The changes, updates, and additions that were made to the Draft ER are highlighted on the Basic Sheets and Factor Sheets in Attachment 4. A summary of the changes is provided in Table A2 below.

Table A2
Summary of the Changes to the Environmental Document and to the Project Resulting from Public Comments

Draft ER Page Number	Final ER Page Number	Location	Description of Revision
Signature Sheet	Signature Sheet	Basic Sheet 1	Updated total Estimate Project Cost for year of expenditure (2018) and refinement of the preferred alternative
			Updated Real Estate Acquisition Portion of Estimated Cost for year of expenditure (2016) and refinement of the preferred alternative
			Updated Right of Way Acquisition areas for refinement of the preferred alternative
			Final ER approvals added
2	1	Basic Sheet 2 Question 1	Added discussion of capacity expansion and traffic demand
2 & 3	1 & 2		Updated the Southeastern Wisconsin Regional Planning Commission (SEWRPC) Transportation Improvement Program (TIP) number and years to reflect the current program
3	3	Basic Sheet 2 Question 1	Added additional discussion of what "reconditioning" and "reconstruction" mean
4	3		Corrected year of last pavement resurfacing to 2000
			Corrected spelling of overlay
			Revised the proposed construction year to 2018
			Corrected the reported truck percentage
4	4		Added minimum lane width information
			Reformatted the desirable shoulder width dimension
			Provided emphasis on the use of Rolling Terrain design criteria
			Corrected the stated number of locations with substandard profile grade
5	4		Provided emphasis on the use of Rolling Terrain design criteria
6	6		Removed reference to the HCM in second paragraph under Traffic Demand
6	6-7		Added discussion of level of service to Traffic Demand
6-8	7-9		Updated crash statistics for most recent data available (2008 to 2012)
8	9		Information on the *US DOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations* and 23 US Code § 217 (g)(1) was added to Bicycle Accommodations
8	9	Basic Sheet 2 Question 2	Added text to provide greater correlation of alternatives to the purpose and need of the project
8	10		Added reference to comments received at the public hearing
9	10		Spelling correction of "side roads"
			Provided additional information about why the Speed Limit Reduction alternative would not meet the purpose and need of the project
			Added definition of spot safety and operational improvements
			Provided clarification of the scope of the Maintenance Overlay Only alternative and provided additional information about why this alternative would not meet the purpose and need of the project
9	11		Added information of what work is included under reconditioning, added definition of spot safety and operational improvements, added discussion of why some sections would be reconstructed instead of reconditioned and why desirable design standards were used for reconstruction sections
			Updated crash statistics for most recent data available (2008 to 2012)
11	13		Provided discussion of the role of level of service in selection of the preferred alternative at the Shady Lane/WIS 164 intersection
			Provided additional clarification about why Alternative 3 was selected as the preferred alternative at the Shady Lane/WIS 164 intersection
11	14		Provided discussion of intersection level of service for the WIS 167/WIS 164 intersection

Table A2 (Continued)

Draft ER Page Number	Final ER Page Number	Location	Description of Revision
12	15	Basic Sheet 2 Question 2	Provide additional clarification about why Alternative 2 was selected as the preferred alternative at the WIS 167/WIS 164 intersection
13	16		Updated crash statistics for most recent data available (2008 to 2012)
14	17		Provided discussion of the role of level of service in selection of the preferred alternative at the Pleasant Hill Road/WIS 164 intersection
			Provided additional clarification about why Alternative 4 was selected as the preferred alternative at the Pleasant Hill Road/WIS 164 intersection
			Updated list of proposed methods for addressing storm water requirements
14	18		Added discussion of the traffic information provided in Basic Sheet 6 and how it relates to the alternatives
15	18	Basic Sheet 2 Question 3	Added lengths and percentage of reconditioning and reconstruction sections
15-16	18-27		Added titles for subsections and rearranged the order of discussion to provide greater clarity and to correlate to the highway deficiencies discussion in Question 2
15	18		Clarified the proposed pavement section for the reconditioning and reconstruction project segments
15	18-19		Provided additional information regarding centerline rumble strips and more supporting information for the proposed lane width
15	19		Provided additional information regarding edge line rumble strips and more supporting information for the proposed total and paved shoulder widths
N/A	19		Noted locations where minimum rather than desirable shoulder widths are proposed.
N/A	20		New section titled “Address Horizontal Alignment”
15	20		Provided additional information regarding the vertical alignment profile grades that would be corrected with the project and which profile grades meet minimum standards and would remain
15	21-22		Provided additional information regarding the vertical alignment vertical curves that would be corrected with the project and which vertical curves meet minimum standards and would remain
15	22		Provided additional information about the proposed intersection improvements
N/A	22-23		New section titled “Level of Service”
15	23		Provided additional information about the roadside safety improvements that are proposed
N/A	13		New section titled “Design Exceptions”
15	23-24		Provided clarification regarding the proposed speed limit at the WIS 164/ Pleasant Hill Road intersection
N/A	24-25		New section titled “National Environmental Protection Act (NEPA) Limits Description” added to clarify the project limits
15	25		Updated list of proposed methods for addressing storm water requirements
			Updated the total right of way acquisition areas to reflect refinements made to the preferred alternative; present the information in table format
15-16	26		Updated the right of way acquisition areas by reconstruction segment to reflect refinements made to the preferred alternative; presented the information in table format
16	26		Updated the right of way acquisition area for non-reconstruction segments to reflect refinements made to the preferred alternative
			Clarification that PLE acquisition would be consistent with FDM guidance and property owners would be compensated for acquisition of PLE areas

Table A2 (Continued)

Draft ER Page Number	Final ER Page Number	Location	Description of Revision
16	26-27	Basic Sheet 2 Question 3	Updated the total right of way acquisition area to reflect refinements made to the preferred alternative. Added more information regarding the use of minimum versus desirable design criteria. Added more information to distinguish between the preferred alternative and the previously studied 4-lane expansion alternative.
17	28	Basin Sheet 2 Question 6	Updated the Southeastern Wisconsin Regional Planning Commission (SEWRPC) Transportation Improvement Program (TIP) number and years to reflect the current program
18	29	Basin Sheet 2 Question 9	Added Public Hearing to the list of public involvement meetings; also clarified timing of final planned public involvement meeting
19	30	Basin Sheet 2 Question 10a	Added reference to Public Hearing information in Environmental Addendum A
20	31	Basin Sheet 2 Question 10b	Added reference to response to comments received at the Public Hearing in Environmental Addendum A
23	34	Basic Sheet 4	Added information related to the evaluation of Indirect and Cumulative Effects
24	36		Updated the Southeastern Wisconsin Regional Planning Commission (SEWRPC) Transportation Improvement Program (TIP) number and years to reflect the current program; updated list of proposed methods for addressing storm water requirements
24	36		Updated discussion of effects on stormwater.
25	37	Basic Sheet 5	Updated construction cost estimates for anticipated year of expenditure (2018); updated real estate cost estimates for anticipated year of expenditure (2016); updated right of way and wetland impacts for refinements made to the preferred alternative
26	38	Basic Sheet 6	Provided updated design year Level of Service, updated the peak hour factor , revised the construction year for Level of Service, and revised the level of service for the WIS 167 to Pleasant Hill Road and Pleasant Hill Road to WIS 175 sections
			Provided updated design year Level of Service, updated the peak hour factor , and revised the construction year for Level of Service,
27	39	Basic Sheet 7	Added reference to WisDOT's Pre-Screening Worksheet for EA and ER Projects for Determining the Need to Conduct a Detailed Indirect Effects Analysis,
			Discussion was added to item 5
27	40		Item 6 was revised to Yes and discussion was added
29	42	Basic Sheet 8	Added commitment to restore areas adjacent to 4(f) properties to their prior condition after grading is complete. Revised wetland impacts for refinements made to the preferred alternative; updated list of proposed methods for addressing storm water requirements
30	43	Factor Sheet A-1	Corrected the design year to 2038.
31	44	Factor Sheet A-2	Corrected the reported truck and passenger car percentages
34	47	Factor Sheet A-3	Revised farmland impacts for refinements made to the preferred alternative
			Revised the number of farm operations impacted by size for refinements made to the preferred alternative
48	61-62	Factor Sheet B-9	Revised Item 3a to include additional discussion of aesthetic impacts due to tree removals

Table A2 (Continued)

Draft ER Page Number	Final ER Page Number	Location	Description of Revision
49	63	Factor Sheet C-1	Updated wetland impact area for Wetland 1 for refinements made to the preferred alternative
51	65		Updated wetland impact area for Wetland 10 and 11 for refinements made to the preferred alternative
52	66		Updated the total wetland impact area for refinements made to the preferred alternative
53	67		Updated the wetland loss and compensation areas for refinements made to the preferred alternative
64-65	78-79	Factor Sheet D-5	Updated list of proposed methods for addressing storm water requirements
68	82	List of Environmental Report Exhibits	Added note referencing back to the Draft ER for all exhibits

6. Describe selected alternative:

☒ Selected alternative is the same as that described on form DT2094, Environmental Evaluation of Facilities Development Actions.

☐ Selected alternative is different from that described on form DT2094, Environmental Evaluation of Facilities Development Actions. Explain changes and why another alternative was selected.

ENVIRONMENTAL ADDENDUM A
LIST OF ATTACHMENTS

Attachment	Title
1	Notice of Public Hearing on the Environmental Aspects and Notice of Availability of an Environmental Document
2	Notice of Extended Public Comment Period and Public Hearing Certification Letters
3	Response to Public Comments and Areas of Concern
4	Revised Basic Sheets and Factor Sheets
5	Indirect Effects Analysis Pre-screening Worksheet
6	NEPA Limits Exhibits
7	Revised Proposed Typical Sections

Attachment 1
Notice of Public Hearing on the Environmental Aspects and Notice of Availability of an Environmental Document

Division of Transportation
System Development
Southeast Regional Office
141 N.W. Barstow Street
P.O. Box 798
Waukesha, WI 53187-0798

Scott Walker, Governor
Mark Gottlieb, P.E., Secretary
Internet: www.dot.wisconsin.gov

Telephone: (262) 548-5903
Facsimile (FAX): (262) 548-5662
E-Mail: waukesha.dtd@dot.wi.gov

January 7, 2014

[redacted]
Slinger, WI 53086

Dear Property Owner or Resident:

Subject: ID 2709-03-00
WIS 164
County Q to County E
Washington County

The Wisconsin Department of Transportation (WisDOT) Southeast Region office would like to inform you that the real estate acquisition for the WIS 164, Lovers Lane, County Q to County E project had been delayed. The WIS 164 project is approximately 7.5 miles in length and extends from north of County Q to just south of County E in Washington County, WI. The goals of this project are to improve safety and pavement conditions. Real estate acquisition was expected to begin in Fall 2013 and now it is anticipated that is will begin in Spring 2014, after the public hearing you are invited to below has occurred, and after revisions to the Environmental Report have been completed and approved.

You are invited to attend the scheduled public hearing on Thursday, January 23, 2014 from 4:00 p.m. to 7:00 p.m., with a presentation at 5:00 p.m. The public hearing will be held at Friess Lake School, 1750 HWY 164, Hubertus, WI 53033. The public hearing is a tool for obtaining citizens' input about the recommended course of action for this project. Exhibits will be available for viewing and staff will be available to answer questions for the duration of the meeting.

As part of the public hearing you will have the opportunity to present verbal and/or written testimony concerning the environmental and design aspects of the proposed improvement. Additional project information is available on the web at the following address: http://wisconsindot.gov/Pages/projects/by-region/se/wis164/default.aspx. WisDOT will give a presentation at 5:00 p.m. Public verbal testimony will begin immediately after the presentation and will end at 7:00 p.m. Individual public testimony will be limited to approximately 3 minutes per person. Individuals may provide additional public verbal testimony if there is time remaining. The opportunity to provide private verbal testimony will be available from 4:00 p.m. to 7:00 p.m. Written testimony can be submitted by fax, mail or e-mail and will be included in the public hearing transcript if postmarked no later than Thursday, February 6, 2014.
Further information can be obtained from Traci Gengler, WisDOT Project Manager, 262-548-8727 or Traci.Gengler@dot.wi.gov.

Sincerely,

Traci Gengler, P.E.

Traci Gengler, P.E.
WisDOT Project Manager
Southeast Region
141 NW Barstow Street
Waukesha, WI 53187

U.S. Department of Transportation
Federal Highway Administration

Notice of public hearing on the environmental aspects and to provide input about the recommended course of action for the WIS 164 (Lovers Lane) County Q to County E in Washington County

ALL INTERESTED PERSONS are advised that the Wisconsin Department of Transportation (WisDOT) will hold a public hearing on the WIS 164 (Lovers Lane), County Q to County E project.

The purpose of this project is to extend the life of the existing two lane roadway and improve safety in the corridor. WIS 164 is a rural arterial roadway with two 11-foot travel lanes and eight foot shoulders, five feet of which are paved. The existing pavement was constructed in 1964 and last resurfaced in 2000. The pavement is currently showing signs of wear and distress and is expected to continue to deteriorate.

The public hearing will be held on Thursday, January 23, 2014 at Friess Lake School in the gym and common area. The address is 1750 HWY 164, Hubertus, WI. Use main entrance to enter the school.

The hearing will be conducted from **4 p.m. to 7 p.m. with a presentation at 5:00 p.m.** Interested persons may attend to review displays and other hearing materials, ask questions, and provide testimony. The meeting facilities are wheelchair accessible. Hearing impaired persons needing assistance should call or e-mail the WisDOT project manager listed below. To allow for arranging assistance, please call no later than three working days prior to the public hearing.

All interested persons are invited to attend the hearing and present verbal and/or written testimony concerning the environmental aspects and provide input about the recommended course of action for this project including those impacts and effects for which permit application to the U.S. Army Corps of Engineers may be required pursuant to Section 404 of the Federal Clean Water Act; and whether the improvement is or is not in the public interest and consistent with the planning goals and objectives of the area planning. WisDOT project staff will be available to explain the features of proposed project and answer questions.

Information about how to present verbal and written testimony will be provided at the public hearing. Written testimony can be submitted by fax, mail, or email after the hearing and will be included in the hearing transcript if postmarked no later than Thursday, February 6, 2014. The address to send written comments is the project manager contact listed below.

All interested persons are further notified of the availability of a Draft Environmental Report (ER) that discusses the need for the proposed improvements, alternatives considered, environmental effects, and which has been prepared according to the State and National Environmental Policy Acts. The Draft ER will be available at the public hearing and is available for inspection and copying at the project website (http://wisconsindot.gov/Pages/projects/by-region/se/wis164/default.aspx) from the WisDOT Project Manager and at the repositories listed below.

WisDOT
Southeast Region Office
141 NW Barstow Street
Waukesha, WI

WisDOT
Bureau of Technical Services
4802 Sheboygan Avenue
Room 451
Madison, WI

Town of Polk
Town Chairman
Attn: Albert Schulteis
3680 STH 60
Slinger, WI

Village of Richfield
Village President
Attn: John Jeffords
4128 Hubertus Road
Hubertus, WI

Washington County
Highway Commissioner
Attn: Tom Wondra
900 Lang Street
West Bend, WI

WisDOT Project Manager's contact information: Traci Gengler, P.E. at Wisconsin Department of Transportation, Southeast Region Office, 141 NW Barstow Street, Waukesha, WI 53187. Phone number is (262) 548-8727 and fax number is (262) 548-8645. Email address is traci.gengler@dot.wi.gov.

WisDOT will review all comments and testimony presented as part of this public hearing process and reserves the right to make a final determination on the proposed improvements as described in this notice.

Project ID 2709-03-00

AFFIDAVIT OF PUBLICATION

State of Wisconsin Circuit Court Washington County

PROOF OF PUBLICATION

Account Name: WisDOT SE Region
Telephone Number: Attn: Sandra Reed
Address: 141 NW Barstow St.
P O Box 798
Waukesha, WI. 53487-0798

ACCT Number: 636888

IN THE MATTER OF: Notice of Public Hearing
Ad Number: 95755016
Ad Cost: $145.31

I, Cindy Shaske, being sworn, state:

I am the billing coordinator of the Daily News, a public newspaper of general circulation, printed and published in the English language in the City of West Bend, in Washington County, Wisconsin, and fully complying with the laws of Wisconsin relating to the publication of legal notices.

The notice, of which a printed copy attached hereto, is a true copy taken from the newspaper as published on the following dates:

12/24/13;1/9/14

Signed: _____
Cindy Shaske, Billing Coordinator

STATE OF WISCONSIN
WASHINGTON COUNTY } SS.

Personally came before me, this date of January 9, 2014, the above named Cindy Shaske to me known to be the person who executed the the foregoing instrument and acknowledged the same.

Signed: _____
Deborah Butzlaff
Notary Public, Wisconsin
My Commission expires: *01/03/16*

Deborah Butzlaff Notary Public State of Wisconsin

Notice of Public Hearing on the Environmental Aspects and to provide input about the recommended course of action for the WIS 164 (Lovers Lane) County Q to County E in Washington County

ALL INTERESTED PERSONS are advised that the Wisconsin Department of Transportation (WisDOT) will hold a public hearing on the WIS 164 (Lovers Lane), County Q to County E project.

The purpose of this project is to extend the life of the existing two lane roadway and improve safety in the corridor. WIS 164 is a rural arterial roadway with two 11-foot travel lanes and eight foot shoulders, five feet of which are paved. The existing pavement was constructed in 1964 and last resurfaced in 2000. The pavement is currently showing signs of wear and distress and is expected to continue to deteriorate.

The public hearing will be held on Thursday, January 23, 2014 at Friess Lake School in the gym and common area. The address is 1750 HWY 164, Hubertus, WI. Use main entrance to enter the school.

The hearing will be conducted from **4 p.m. to 7 p.m. with a presentation at 5:00 p.m.** Interested persons may attend to review displays and other hearing materials, ask questions, and provide testimony. The meeting facilities are wheelchair accessible. Hearing impaired persons needing assistance should call or e-mail the WisDOT project manager listed below. To allow for arranging assistance, please call no later than three working days prior to the public hearing.

All interested persons are invited to attend the hearing and present verbal and/or written testimony concerning the environmental aspects and provide input about the recommended course of action for this project including those impacts and effects for which permit application to the U.S. Army Corps of Engineers may be required pursuant to Section 404 of the Federal Clean Water Act; and whether the improvement is or is not in the public interest and consistent with the planning goals and objectives of the area planning. WisDOT project staff will be available to explain the features of proposed project and answer questions.

Information about how to present verbal and written testimony will be provided at the public hearing. Written testimony can be submitted by fax, mail or email after the hearing and will be included in the hearing transcript if postmarked no later than Thursday, February 6, 2014. The address to send written comments is the project manager listed below.

All interested persons are further notified of the availability of a Draft Environmental Report (ER) that discusses the need for the proposed improvements, alternatives considered, environmental effects, and which has been prepared according to the State and National Environmental Policy Acts. The Draft ER will be available at the public hearing and is available for inspection and copying at the project website http://www.dot.wi.gov/projects/seregion/164/ from the WisDOT project Manager and at the repositories listed below.

WisDOT
Southeast Region Office
141 NW Barstow Street
Waukesha WI

WisDOT
Bureau of Tech. Srvs
4802 Sheboygan Ave.
Room 451
Madison, WI

Town of Polk
Town Chairman
Attn: Albert Schulteis
3680 STH 60
Slinger, WI

Village of Richfield
Village President
Attn: John Jeffords
4128 Hubertus Road
Hubertus, WI

Washington County
Highway Commissioner
Attn: Tom Wondra
900 Lang Street
West Bend, WI

Wis DOT Project Manager's contact information: Traci Gengler, P.E. at Wisconsin Department of Transportation, Southeast Region Office, 141 NW Barstow Street, Waukesha, WI 53187. Phone number is (262) 548-8727 and fax number is (262) 548-8645. Email address is traci.gengler@dot.wi.gov.

WisDOT will review all comments and testimony presented as part of this public hearing process and reserves the right to make a final determination on the proposed improvements as described in this notice.

Project ID 2709-03-00

Publish:Dec. 24; Jan. 9

WNAXLP

Attachment 2
Notice of Extended Public Comment Period and Public Hearing Certification Letters

Division of Transportation
System Development
Southeast Regional Office
141 N.W. Barstow Street
P.O. Box 798
Waukesha, WI 53187-0798

Scott Walker, Governor
Mark Gottlieb, P.E., Secretary
Internet: www.dot.wisconsin.gov

Telephone: (262) 548-5903
Facsimile (FAX): (262) 548-5662
E-Mail: waukesha.dtd@dot.wi.gov

February 3, 2014

[redacted]
Slinger, WI 53086

Subject: ID 2709-03-00
WIS 164 (Lovers Lane)
County Q to County E
Washington County

The Wisconsin Department of Transportation (WisDOT) Southeast Region office held a public hearing for the WIS 164 (Lovers Lane), County Q to County E project on Thursday, January 23, 2014 at Friess Lake School. At this hearing, WisDOT announced that the comment period for the public hearing would end on Thursday, February 6th. We'd like to make sure we are hearing from everyone that would like to comment therefore we are extending the comment period to Friday, February 28th.

The WIS 164 project addresses safety and pavement condition concerns from County Q to County E in the Village of Richfield and Town of Polk, Washington County, Wisconsin. Additional information about this project is available from the project website: http://wisconsindot.gov/Pages/projects/by-region/se/wis164/default.aspx

Written comments can be submitted to me by fax, mail or e-mail at the following address:

Traci Gengler, P.E.
WisDOT Southeast Region Office
141 NW Barstow Street
Waukesha, WI 53187
Traci.Gengler@dot.wi.gov
Fax: (262) 548-5662

Your comments will be included in the public hearing transcript if postmarked no later than Friday, February 28, 2014.

Further information can be obtained from me at (262) 548-8727 or Traci.Gengler@dot.wi.gov.

Sincerely,

Traci Gengler, P.E.

Traci Gengler, P.E.
WisDOT Project Manager

U.S. Department of Transportation
Federal Highway Administration

Notice of public hearing on the environmental aspects and to provide input about the recommended course of action for the WIS 164 (Lovers Lane) County Q to County E in Washington County

ALL INTERESTED PERSONS are advised that the Wisconsin Department of Transportation (WisDOT) has extended the comment period for the Draft Environmental Report (ER) for this project to Friday, February 28, 2014.

The purpose of this project is to extend the life of the existing two lane roadway and improve safety in the corridor. WIS 164 is a rural arterial roadway with two 11-foot travel lanes and eight foot shoulders, five feet of which are paved. The existing pavement was constructed in 1964 and last resurfaced in 2000. The pavement is currently showing signs of wear and distress and is expected to continue to deteriorate.

A public hearing was held on Thursday, January 23, 2014 at Friess Lake School, 1750 HWY 164, Hubertus, WI. From 4 p.m. to 7 p.m. Testimony from interested stakeholders was received at the hearing.

All interested persons are invited to provide written testimony concerning the environmental aspects and provide input about the recommended course of action for this project including those impacts and effects for which permit application to the U.S. Army Corps of Engineers may be required pursuant to Section 404 of the Federal Clean Water Act; and whether the improvement is or is not in the public interest and consistent with the planning goals and objectives of the area planning.

Written testimony can be submitted by fax, mail, or email and will be included in the hearing transcript if postmarked no later than Friday, February 28, 2014. The address to send written comments is the project manager contact listed below.

All interested persons are further notified of the availability of a Draft Environmental Report (ER) that discusses the need for the proposed improvements, alternatives considered, environmental effects, and which has been prepared according to the State and National Environmental Policy Acts. The Draft ER will be available at the public hearing and is available for inspection and copying at the project website (http://wisconsindot.gov/Pages/projects/by-region/se/wis164/default.aspx) from the WisDOT Project Manager and at the repositories listed below.

WisDOT
Southeast Region Office
141 NW Barstow Street
Waukesha, WI

WisDOT
Bureau of Technical Services
4802 Sheboygan Avenue
Room 451
Madison, WI

Town of Polk
Town Chairman
Attn: Albert Schulteis
3680 STH 60
Slinger, WI

Village of Richfield
Village President
Attn: John Jeffords
4128 Hubertus Road
Hubertus, WI

Washington County
Highway Commissioner
Attn: Tom Wondra
900 Lang Street
West Bend, WI

WisDOT Project Manager's contact information: Traci Gengler, P.E. at Wisconsin Department of Transportation, Southeast Region Office, 141 NW Barstow Street, Waukesha, WI 53187. Phone

number is (262) 548-8727 and fax number is (262) 548-8645. Email address is traci.gengler@dot.wi.gov.

WisDOT will review all comments and testimony presented as part of this public hearing process and reserves the right to make a final determination on the proposed improvements as described in this notice.

Project ID 2709-03-00

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WISCONSIN DEPARTMENT OF TRANSPORTAT
ATTN MICHAEL PYRITZ
141 NW BARSTOW STREET

WAUKESHA, WI 53187

Patti Guerrero hereby states that she is authorized by Journal Communications Inc. to certify on behalf of Journal Sentinel Inc., publisher of the Milwaukee Journal Sentinel and The Sunday Journal Sentinel, public newspapers of general circulation, printed and published in the city and county of Milwaukee; published in the Daily Edition of the Milwaukee Journal Sentinel on **2/20/2014**; that the Milwaukee Journal Sentinel and The Sunday Journal Sentinel are newspapers printed in the English language and that said printed copy was taken from said printed newspaper(s).

Patti Guerrero

DONNA LAIRD
NOTARY PUBLIC
STATE OF WISCONSIN

State of Wisconsin

County of Milwaukee

Subscribed and sworn before me this 24 day of FEB ,2014.

Donna Laird

Notary Public State of Wisconsin

My Commission Expires DONNA LAIRD NOTARIZED COMMISSION EXPIRES 02-24-14 10*09*16

For Office Use Only
Preparer's Initials: DJ

Notice of public hearing on the environmental aspects and to provide input about the recommended course of action for the WIS 164 (Lovers Lane) County Q to County E in Washington County

ALL INTERESTED PERSONS are advised that the Wisconsin Department of Transportation (WisDOT) has extended the comment period for the Draft Environmental Report (ER) for this project to Friday, February 28, 2014.

The purpose of this project is to extend the life of the existing two lane roadway and improve safety in the corridor. WIS 164 is a rural arterial roadway with two 11-foot travel lanes and eight foot shoulders, five feet of which are paved. The existing pavement

was constructed in 1964 and last resurfaced in 2000. The pavement is currently showing signs of wear and distress and is expected to continue to deteriorate.

A public hearing was held on Thursday, January 23, 2014 at Friess Lake School, 1750 HWY 164, Hubertus, WI. From 4 p.m. to 7 p.m. Testimony from interested stakeholders was received at the hearing.

All interested persons are invited to provide written testimony concerning the environmental aspects and provide input about the recommended course of action for this project including those impacts and effects for which permit application to the U.S. Army Corps of Engineers may be required pursuant to Section 404 of the Federal Clean Water Act; and whether the improvement is or is not in the public interest and consistent with the planning goals and objectives of the area planning.

Written testimony can be submitted by fax, mail, or email and will be included in the hearing transcript if postmarked no later than Friday, February 28, 2014. The address to send written comments is the project manager contact listed below.

All interested persons are further notified of the availability of a Draft Environmental Report (ER) that discusses the need for the proposed improvements, alternatives considered, environmental effects, and which has been prepared according to the State and National Environmental Policy Acts. The Draft ER will be available at the public hearing and is available for inspection and copying at the project website (http://www.dot.wi.gov/projects/seregion/164/) from the WisDOT Project Manager and at the repositories listed below.

WisDOT
Southeast Region Office
141 NW Barstow Street
Waukesha, WI

Town of Polk
Town Chairman
Attn: Albert Schulteis
3680 STH 60
Slinger, WI

Washington County
Highway Commissioner Attn: Tom Wondra
900 Lang Street
West Bend, WI

WisDOT
Bureau of Technical Services
4802 Sheboygan Avenue
Room 451
Madison, WI

Village of Richfield
Village President
Attn: John Jeffords
4128 Hubertus Road
Hubertus, WI

WisDOT Project Manager's contact information: Traci Gengler, P.E. at Wisconsin Department of Transportation, Southeast Region Office, 141 NW Barstow Street, Waukesha, WI 53187. Phone number is (262) 548-8727 and fax number is (262) 548-8645. Email address is traci.gengler@dot.wi.gov.

WisDOT will review all comments and testimony presented as part of this public hearing process and reserves the right to make a final determination on the proposed improvements as best meet the needs

Project ID 2709-03-00
WNAXLP

Division of Transportation
System Development
Southeast Regional Office
141 N.W. Barstow Street
P.O. Box 798
Waukesha, WI 53187-0798

Scott Walker, Governor
Mark Gottlieb, P.E., Secretary
Internet: www.dot.wisconsin.gov

Telephone: (262) 548-5903
Facsimile (FAX): (262) 548-5662
E-Mail: waukesha.dtd@dot.wi.gov

March 16, 2015

ATTN: MARK CHANDLER
FEDERAL HIGHWAY ADMINISTRATION
CITY CENTER WEST
525 JUNCTION ROAD, SUITE 8000
MADISON, WI 53717

Subject: ID 2709-03-00
WIS 164 (Lovers Lane)
County Q to County E
Washington County

Dear Mr. Chandler,

This letter is being provided per your email request of 03/11/2015. The intent of this letter is to provide WisDOT certification on WisDOT letterhead concerning the WIS 164 (County Q to County E) public hearing in accordance with 23 USC, Section 128 and 23 CFR 771.111(i)(vi).

The original certification letter and public hearing record CD was sent by Stephan Hoffmann, P.E., Project Manager of R.A. Smith National on 03/27/2014. The certification letter was transmitted on R.A. Smith National letterhead. It was received in your office on 03/28/2014 and you acknowledged your receipt of the public hearing record certification letter and CD by email on 03/31/2014.

The original public hearing record certification letter and CD transmitted by Stephan Hoffmann were both reviewed by WisDOT. The original CD that was transmitted on 3/27/2014 and accepted by you on 3/31/2014 is still valid as there have been no changes, additions or deletions to said CD since the original transmittal.

The public hearing was held on January 23, 2014, and the public hearing record transmitted electronically on the CD along with the original certification letter contained the following information:

- Summary and copies of public hearing exhibits and materials
- Hearing displays and handouts
- Hearing notices and news releases
- Attendance sign-in sheets
- Court reporter transcripts of all oral testimony
- All written testimony
- Hearing Photos

As documented in the hearing record, WisDOT afforded an opportunity to attend the public hearing that considered the economic and social effects of the proposed project, its impacts on the environment, and its consistency with the goals and objectives of regional and local planning. The hearing was held at Friess Lake School in the village of Richfield. The hearing was open to anyone desiring to comment on the document.

The Draft Environmental Report, which was the basis for the public hearing, was made available to the public prior to and during the public hearing. The Draft Environmental Report documents the social, environmental and other effects of the location and design of the proposed project, as well as the various alternatives that were presented and considered at the public hearing.

Please contact me if you have any questions or need additional information.

Sincerely,

Janet Cannon, P.E.
WisDOT Project Development Supervisor

CC:
Doug Cain/WisDOT SE Region PM,
Scott Lee/ SE Region Environmental coordinator,
Jay Waldschmidt, WisDOT BTS-EDPS Liaison, WisDOT CO File (Jay Waldschmidt to file),
Cameron Smith/WisDOT General Counsel,
Bao Tran/Lakeside Engineers
Stephan Hoffmann, P.E./R.A. Smith National

R.A. Smith National
Beyond Surveying and Engineering

March 27, 2014

ATTN: MR. MARK CHANDLER
FEDERAL HIGHWAY ADMINISTRATION
CITY CENTER WEST
525 JUNCTION ROAD, SUITE 8000
MADISON, WI 53717

Dear Mr. Chandler,

RE: Project 2709-03-00

This letter is to provide WisDOT's formal certification concerning the WIS 164 (County Q to County E) public hearing in accordance with 23 USC, Section 128 and 23 CFR 771.111(i)(vi). The public hearing was held on January 23, 2014 and the public hearing record transmitted electronically on CD along with this certification letter contains the following information:

- Summary and copies of public hearing exhibits and materials
- Hearing displays and handouts
- Hearing notices and news releases
- Attendance sign-in sheets
- Court reporter transcripts of all oral testimony
- All written testimony
- Hearing Photos

As documented in the hearing record, WisDOT afforded an opportunity to attend the public hearing that considered the economic and social effects of the proposed project, its impacts on the environment, and its consistency with the goals and objectives of regional and local planning. The hearing was held at Friess Lake School in the Village of Richfield. The hearing was open to anyone desiring to comment on the document.

The Draft Environmental Report which was the basis for the public hearing was made available to the public prior to and during the public hearing. The Draft Environmental Report documents the social, environmental and other effects of the location and design of the proposed project, as well as the various alternatives that were presented and considered at the public hearing.

Please contact me if you have any questions or need additional information.

Sincerely,

Stephan Hoffmann, PE
Project Manager, R.A. Smith National
262-317-3265
Stephan.hoffmann@rasmithnational.com

CC: Traci Gengler/WisDOT SE Region PM, Scott Lee/SE Region Environmental Coordinator, Jay Waldschmidt/WisDOT BTS-EDPS Liaison, WisDOT CO File (Jay Waldschmidt to file), Cameron Smith/WisDOT General Counsel, Bao Tran/Lakeside Engineers

Attachment 3
Response to Public Comments and Areas of Concern

A. Comments Related to Purpose and Need

1. Concern that this project is an intermediate step to transition to the expansion from a 2-lane highway to a 4-lane highway
   This project has made no consideration for a potential future conversion to a 4-lane highway. The improvements and right of way acquisition recommended for approval as the Preferred Alternative address the current needs in the project corridor as well as the anticipated needs through the 20 year design life of the project.

   The design year 2038 traffic projections for WIS 164 vary from 8,500 to 13,800 vehicles per day depending on the project segment. WisDOT design guidelines and the Transportation Research Board's Highway Capacity Manual HCM 2000 indicate 15,000 AADT as the threshold volume that can be safely handled at an acceptable service level on a 2-lane rural/suburban highway that meets applicable/current design standards, but existing WIS 164 does not meet current design standards. Some criteria but not all are met for the consideration of a future capacity expansion. Capacity expansion is defined as the addition of though travel lanes, and capacity expansion is not a consideration or part of this reconditioning project.

   Discussion of the existing and future traffic volumes and level of service as they relate to warrants for expansion can be found under Traffic Demand on page 5 of 82 as well as section titled Level of Service & Traffic Flow on page 22 of 82 in Attachment 4 Revised Basic Sheets and Factor Sheets.

   Discussion of the widening the travel lanes from 11 feet to 12 feet is located under Address Lane Width on page 18 of 82 in Attachment 4 Revised Basic Sheets and Factor Sheets.

   Additional information related to the right of way required for the proposed action can be found under Right of Way Acquisition on pages 25 through 27 of 82 in Attachment 4 Revised Basic Sheets and Factor Sheets

2. Concern that traffic counts and projections are inflated
   The traffic counts are representative of the average annual daily traffic (AADT) in the corridor. Automated through traffic counts on WIS 164 have been collected at multiple locations throughout the corridor. Manual hourly intersection counts were also performed at the intersections of WIS 164 with County Q, Elmwood Road, Monches Road, Hubertus Road, WIS 167, Pioneer Road, Pleasant Hill Road and County E. Traffic projections are based on this traffic count data as well as area land use plans and traffic growth trends.

   The traffic projections for WIS 164 include a relatively low growth rate of approximately 1% per year. Annual average growth rates of 1.5% to 2% are not uncommon in many state trunk highway corridors. The projected traffic has a minimal effect on the proposed improvements with a reconditioning project like the project currently proposed for WIS 164. The proposed improvements are related to addressing the predominant safety and operational problems currently experienced in the project corridor. These improvements would be recommended even if the projected traffic volumes were the same as the existing traffic volumes.

   Discussion of the existing and future traffic volumes and level of service can be found under Traffic Demand on page 5 of 82 as well as section titled Level of Service & Traffic Flow on page 22 of 82 in Attachment 4 Revised Basic Sheets and Factor Sheets.

3. Crashes decreased when the speed limit was reduced to 45 mph while WIS 164 was used as an alternate route during the US 45 resurfacing
   The crash rate comparison that was made for this short term condition was flawed. This speed reduction to 45 mph only occurred during the summer months. The crash rate for this short time period was compared to an annual crash rate for the corridor. Crash rates are historically higher during the winter months when road and weather conditions are poor. Furthermore, crash trends are typically evaluated over several years and then compared to a state wide average or crash rates in the corridor from previous years. A larger sample size would be required to be statistically significant and conclude that a posted speed of 45 mph would decrease the number of crashes.

   The Speed Limit Reduction Alternative is addressed in the Environmental Report. The University of Wisconsin Madison Traffic Operations and Safety (TOPS) Lab speed study in the existing corridor shows that there is a lack of compliance with the existing posted speeds. It is documented that speed differential leads to higher crash rates on highways. Refer to Basic Sheet 2 Question 2 for additional information and sources for this research. The alternative to lower the posted speed limit alone on WIS 164 with no geometric improvements would not meet one of the project's primary goals to improve safety, nor would it respond to public comments regarding the need to improve safety on this corridor.

4. The road is too dangerous right now
   Improving safety in the project corridor is one of the primary project purposes. Crash rates in the corridor are above the statewide average for similar roadways, and injury and fatal crashes make up a higher than expected ratio of the total crashes experienced in the project corridor. The proposed improvements included in the Preferred Alternative were proposed based on the types and location of crashes most commonly experienced in the corridor. It is anticipated that the proposed improvements included in the Preferred Alternative would reduce the crash rates in the project corridor.

B. Comments Related to Alternatives

1. WIS 164 should be widened from 2-lanes to 4-lanes.
   The projected traffic volumes do not warrant evaluation of an alternative that expands WIS 164 from two lanes to four lanes within the 20 year design life of this project, but they do fall within levels where capacity expansion may be considered. Although the design year level of service (LOS) would be below thresholds for this type of facility, WisDOT has decided not to consider capacity expansion at this time and the scope of the project has been defined as a reconditioning project. Discussion of the existing and future traffic volumes and level of service as they related to warrants for expansion can be found under Traffic Demand on page 5 of 82 as well as the section titled Level of Service and Traffic Flow on page 22 of 82 in Attachment 4 Revised Basic Sheets and Factor Sheets.

2. Disagree that 12 foot wide travel lanes are needed.
   A centerline rumble strip is proposed as a proven safety improvement feature for 2-lane rural highways such as WIS 164. The minimum lane width for including a centerline rumble strip is 12 feet per WisDOT Facilities Development Manual (FDM) Chapter 11-15 Section 1.5.1.2.1). Twelve (12) foot wide travel lanes are also desirable because WIS 164 is a state designated Long Truck Route and on the National Highway System per FDM 11-40 Attachment 1.2, Design Class 3RA3 and footnote 1. Average truck volumes are 8.4% on WIS 164, which is just below the 10% criteria that would require two 12 foot lanes as a minimum. Twelve foot wide lanes are desirable because they would provide the added safety benefit of desirable lateral clearance between vehicles, particularly large commercial vehicles, traveling in opposite directions.

   Additionally, the proposed 12-foot wide travel lanes would be consistent with the lane width for the adjacent sections of WIS 164 to the north and south of the proposed action, which are also 12 feet wide.

3. Only need to resurface the roadway and add turn lanes, spot improvements are not needed.
   The Maintenance Overlay Only Alternative is addressed in the Environmental Report. This alternative would consist of placing a 2-inch asphalt overlay on the roadway. Spot safety and operational improvements and bicycle accommodations would not be included. This alternative would address the near- to mid-term pavement deficiencies without changes to the physical dimensions of the roadway or intersections. Other than a more permanent solution to improving the pavement surface and minor surface drainage problems, it would not address operational deficiencies, pedestrian and bicycle access and safety, or roadside safety and drainage deficiencies. Therefore, this alternative would not meet the purpose and need of the project and is not selected as the preferred alternative.

4. Post a consistent 45 mph regulatory speed limit on WIS 164 throughout the project corridor.
   The Speed Limit Reduction Alternative is addressed in the Environmental Report. The UW TOPS Lab speed study in the existing corridor show that there is a lack of compliance with the existing posted speeds. It is documented that speed differential leads to higher crash rates on highways. The alternative to lower the speed limits alone on WIS 164 with no geometric improvements would not meet one of the project's primary goals to improve safety, nor would it respond to public comments regarding the need to improve safety on this corridor.

5. Post a 30 mph regulatory speed limit on WIS 164 at the Pleasant Hill Road intersection.
   Geometric improvements are proposed at the intersection of WIS 164 and Pleasant Hill Road including the addition of right turn lanes, a 30 foot centerline shift away from the existing buildings on the east side of WIS 164, and removal of the two residential buildings on the west side of the intersection. This would improve sight distance for vehicles turning onto WIS 164 or crossing WIS 164 at the Pleasant Hill Road intersection. The offset to the buildings that would remain on the east side would also improve. This would result in an intersection that can operate safely at a higher posted speed. Final determination of the posted speed at this intersection remains to be made, but is anticipated to be either 50 or 55 mph.

   The UW TOPS Lab speed study at this intersection shows that there is a lack of compliance with the existing 40 mph posted speed limit and speed feedback signs. These signs are located where the speed limit is reduced from 55 mph to 40 mph at the Pleasant hill Road intersection. It is documented that speed differential leads to higher crash rates on highways. Further lowering the posted speed is not expected to improve speed limit compliance or improve safety at this intersection, which is not consistent with the purpose and need identified for this project corridor.

6. Eliminate bicycle lanes from the proposed project because they would be too dangerous.
Bike accommodations on highway projects are controlled by state law TRANS 75 when state or federal funding is used for construction and by 23 US Code § 217 for projects on the National Highway System when federal funding is used for construction. Reconditioning projects are not required to include bike accommodations, but they are strongly encouraged to be included in all highway projects wherever possible. It was determined that it was prudent and feasible to include bike accommodations along WIS 164 with the Preferred Alternative by providing a 6 foot wide paved shoulder. This bike accommodation is not a bike lane. WIS 164 would not be signed as a bike route. The intent of the 6 foot wide paved shoulder would be to provide a paved area for experienced bike riders to travel along the WIS 164 corridor that would likely be using the corridor even if a narrower pavement width was available.

   This bike accommodation would not increase the typical roadway width. The total typical shoulder width would be 10 feet wide (8 feet minimum), whether bike accommodations are provided or not. The only change from typical highway standards would be to increase the paved portion of the shoulder from 5 feet wide to 6 feet wide. This added pavement width has the additional benefit of a wider paved surface for recovery of an errant vehicle, and also provides added pavement width for vehicles pulling onto the shoulder to enter a driveway along WIS 164. There would be a 4 foot increase in pavement width along right turn lanes. This added width would provide 4 feet of added pavement width between the through travel lane and the right turn lane for bike accommodation through the intersection.

   Elimination of the bicycle accommodations would not satisfy the purpose and need identified for this project corridor.

   If this would be a designated bike lane it would require additional width at the intersections (increase width adjacent to turn lanes from 4 feet to 5 feet). Additional signing and pavement marking would also be required. The signing and marking of a designated bike lane would likely promote greater use of the highway by bikes by a variety of bicycle riders, and that is not the intent for this highway corridor and is not consistent with the purpose and need for this project.

7. The addition of turn lanes on WIS 164 at the intersections and cutting the steep hills are good ideas that would help improve safety in the corridor.
These comments support two key safety improvements included in the Preferred Alternative.

   The addition of turn lanes and bypass lanes at all intersections would provide consistent geometry throughout the corridor. Right turn lanes would improve operations by allowing vehicles turning right from WIS 164 to decelerate safely outside the through travel lane and also provide an area for through traffic on WIS 164 to go around vehicles waiting to turn left onto a cross road. Bypass lanes would allow through traffic on WIS 164 to go around vehicles waiting to turn left onto a cross road at tee intersections. These improvements would greatly reduce conflicts between turning vehicles and through traffic.

   The proposed hill cuts would be located in areas which the existing hills are severely deficient from a design perspective and are recommended for improvement based on the existing crash history at these locations. Reduced profile slopes and improved sight distances would be provided at these locations with the Preferred Alternative. Improved safety at these proposed hill cut locations is anticipated.

8. The roundabout proposed at the intersection of WIS 164 and WIS 167 is a bad idea; roundabouts are dangerous near a school and would make the intersection less safe. Traffic signals or 4-way stop control should be reconsidered.
There is no basis for the claim that roundabouts are less safe near a school. An Intersection Control Evaluation (ICE) Report was prepared for this intersection. This report considered four way stop, signalized and roundabout intersection control. Traffic operations, safety, right of way, operation and maintenance costs, construction costs, environmental impacts, pedestrian and bicycles accommodations, practical feasibility, and accommodation of oversize/overweight vehicles were all considered. All-way stop control was not considered a viable intersection control alternative because it could not address the existing or proposed traffic volumes adequately.

   The roundabout alternative would lower vehicle speeds at the intersection, would reduce the number of conflict points, and would eliminate the potential high-speed angle crashes; therefore, the roundabout alternative would be expected to provide safer vehicular operations when compared the traffic signal control alternative. Based on a study by the Insurance Institute for Highway Safety, U.S. roundabouts decreased fatal crashes by 90% and injury crashes by 76%.

   Traffic signal control and a roundabout present feasible traffic control options that would provide adequate operations under the future year conditions. The roundabout alternative would provide a safety advantage, fewer impacts and lower costs. Based on the evaluation of the documented criteria, a roundabout is recommended for the WIS 164 intersection with WIS 167.

9. The roundabout proposed at the intersection of WIS 164 and WIS 167 is a good idea; pedestrian concerns that have been expressed are not an issue because students are not allowed to walk to Friess Lake School.
These comments support the proposed roundabout, which is a key operational improvement included in the Preferred Alternative. See the response to the previous comment for additional information.

   Pedestrian accommodations are not a major consideration at this intersection because there are no existing or proposed sidewalks or side paths along WIS 164 or WIS 167. The roundabout alternative would provide a safer pedestrian crossing solution when compared to the traffic signal alternative. With a roundabout you only cross one direction of travel at a time, and vehicle travel speeds are low. Cross walk lengths would be substantially longer with a signalized alternative and through traffic would be traveling at highway speeds. With a traffic signal there is the advantage of crossing in front of stopped traffic, but there are also the potential conflicts with left and right turning vehicles.

10. Construct the roundabout large enough to accommodate large vehicles.
WIS 164 is a state designated Long Truck Route. The roundabout design would accommodate all of the required large vehicle types entering the intersection including oversize and overweight trucks and farm equipment.

C. Comments Related to the Environmental Document

1. An Environmental Report (ER) is not the appropriate document type; there would be significant impacts and an Environmental Impact Statement (EIS) is required.
This reconditioning project does not meet the National Environmental Policy Act (NEPA) or Wisconsin Environmental Policy Act (WEPA) requirements for an Environmental Assessment (EA) or an Environmental Impact Statement (EIS). Preparation of an ER is consistent with guidelines in TRANS 400.08(c) for this highway modernization that includes resurfacing, rehabilitation, reconstruction and adding auxiliary lanes without significant environmental effects.

   WisDOT has met applicable legal standards in its review and evaluation of the environmental impacts of this project. Pursuant to 23 CFR §771.117(d), WisDOT has determined that a categorical exclusion applies to this project. Categorical exclusions (CEs) are actions which meet the definition contained in 40 CFR 1508.4, and, based on past experience with similar actions; do not involve significant environmental impacts. The proposed action does not induce significant impacts to planned growth or land use for the area; does not require the relocation of significant numbers of people; does not have a significant impact on any natural, cultural, recreational, historic or other resource; does not involve significant air, noise, or water quality impacts; does not have significant impacts on travel patterns; and does not otherwise, either individually or cumulatively, have significant environmental impacts. No significant environmental impacts have been identified through the project development process, or in coordination with the resource agencies; therefore, a higher level environmental document is not required.

   Accordingly, WisDOT has recently completed a Draft Environmental Report (ER) for review. Consultation with the Federal Highway Administration (FHWA) indicates their concurrence with the environmental document type selection. A public hearing was held on the Draft ER because of project related concerns voiced at public involvement activities during project development. Additional feedback from the public regarding the Draft ER and information presented at the Public Hearing has been incorporated in the Final ER.

   Also refer to Basic Sheet 7 in Attachment 4 for more information.

2. An Agricultural Impact Statement (AIS) is required.
There have been some concerns raised by the public related to the loss of agricultural lands. State and Federal Review agencies were given an opportunity to comment on the project and the loss of agricultural lands as a result of this project was not raised as a concern. Most notably the Department of Agriculture, Trade and Consumer Protection (DATCP), did not express concerns with this project and determined that an Agricultural Impact Statement (AIS) will not be prepared for this project. Refer to Exhibit 12 in the Draft ER for correspondence with DATCP. Refer to Factor Sheet A-3 in Attachment 4 for more information about the proposed farmland impacts.

3. A noise analysis is required.
A noise analysis is not required for this project per WisDOT's Facilities Development Manual (FDM) Chapter 23-10-1. This project does not meet any of the criteria for a Type I project. This project would not be a highway on new location, would not substantially alter the horizontal or vertical alignment adjacent to a receptor, would not add any through travel lanes, or would not otherwise meet the criteria for classification as a Type I project.

   This is a Type III Project per FDM Chapter 23-10-1.3; therefore, a detailed noise analysis is not required.

4. A groundwater study is required.
   There would be no work in this project that warrants a groundwater study. There would be no storm water infiltration facilities or notable underground work such as bridge pile driving proposed with the Preferred Alternative.

5. An indirect and cumulative effects analysis is required.
   The answer to Question 7 found on the FHWA website http://www.environment.fhwa.dot.gov/guidebook/qaimpact.asp "Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process" states, "Since projects approved with CEs[1] are generally minor in nature and have less than significant impacts, indirect and cumulative impacts assessments will generally not be warranted. There may be exceptions, which can be evaluated on a case-by-case basis."

   Based on citizen concerns, an indirect effects pre-screening was performed using the form titled "WisDOT Pre-Screening Worksheet for EA and ER Projects For Determining the Need to Conduct a Detailed Indirect Effect Analysis" The prescreening worksheet is found in the document *Wisconsin Department of Transportation Guidance for Conducting an Indirect Effects Analysis* located at:

   http://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt-rsrces/environment/indirecteffectsguide2014sp.pdf

   The analysis determined that the project will not have the likelihood to result in significant indirect effects as defined by NEPA. This conclusion was based on the evaluation of 10 pre-screening factors including project design concepts and scope; project purpose and need; project type; facility function (current and planned); project location; improved travel times to an area; local land use and planning considerations; population and demographic considerations; rate of urbanization; and public/agency concerns.

   The data and evaluation supporting this conclusion are included as Attachment 5.

   [1]A WisDOT Environmental Report (ER) is an FHWA documented and approved Categorical Exclusion (CE) under 23 CRF 771.117(d).

D. Comment Related to the Project Funding

1. $16 million is a waste of money when there is an $8,000 solution available.
   The low cost Speed Limit Reduction Alternative that was recommended by the public at the second Public Information Meeting was evaluated in the ER. Evaluation of this alternative determined that it would not address the safety needs in the corridor. The University of Wisconsin Traffic Operations Laboratory speed study completed in June of 2010 shows that many drivers do not comply with existing posted speed limits, nor to the existing speed feedback signs in the 55 mph areas currently on WIS 164. This study along with common established engineering practice recommends that lowering the speed limits would be expected have little to no effect on driver speeds. The Speed Limit Reduction Alternative would do nothing to address the other purpose and need goals of the project such as pavement condition, traffic flow, bicycle accommodations, or existing highway deficiencies.

   The roadway pavement condition is deteriorating and needs to be addressed. A simple resurfacing of the existing pavement was evaluated with the Maintenance Overlay Only alternative in the ER. Although the project costs would be substantially less than the Preferred Alternative of Resurfacing with Spot Safety and Geometric Improvements, it would not meet the purpose and need identified for this project. The added cost of the Preferred Alternative would come with many added benefits to WisDOT and the traveling public such as improved safety, improved operations, reduced maintenance operations and costs, and a longer duration until the next required resurfacing.

   Refer to Basic Sheet 2, Question 2 for further information about the lower cost alternatives that were considered, and why they were dismissed from further consideration.

E. Comments Related to the Public Hearing

1. The Public Hearing format used for this project is not legal; all testimony should be given as public verbal testimony.
   A Public Hearing was not required for this project, but was conducted to ensure that sufficient opportunities were given for all stakeholders to review and comment on the project. The hybrid Public Hearing format that was used met all NEPA and WisDOT guidelines. The hybrid style Public Hearing provides a variety of opportunities to provide testimony: public verbal testimony, private verbal testimony, and written testimony. This format allows the project team to interact with the public and

answer individual questions. If all testimony was required to be public verbal testimony this would discriminate against those that are uncomfortable speaking publicly in front of a crowd. Allowing only public verbal testimony would also require a substantially greater time commitment for project staff and those attending the meeting because those wishing to testify would have to wait for their turn to speak. The exclusive use of public verbal testimony for a public hearing is not required.

2. The Environmental Report was not posted on the website when stated in the Public Hearing Notice.
The Public Hearing notice noted that the Draft ER was available for review at five locations. The electronic version of the Draft ER was mistakenly posted to the wrong WIS 164 project page on the WisDOT web site. This error was corrected when the problem was identified on January 12, 2014. The document was available in hard copy format prior to December 23, 2013 at the five public locations that were stated in the Public Hearing announcement for anyone that wanted to review the document. The comment period was extended from February 6 to February 28, 2014, to respond to public comments that the Draft ER was posted electronically less than the desirable 30 days in advance of the Public Hearing. Individual notices of the extended comment period were distributed to the entire project mailing list on February 6, and an announcement was also published in the Milwaukee Journal Sentinel on February 20, 2014.

F. Comments Related to Property Acquisition/Impacts

1. Concern that the project would decrease property values.
The effect of roadway improvements on property values is not predictable. Property values are influenced by a wide variety of factors including the characteristics of the adjacent roadway and access to the property. There are impacts along many of the properties that abut the proposed improvements. Any direct impacts and proximity impacts to parcels along the project corridor would be compensated by the Department of Transportation as part of the right of way acquisition process.

2. Concern that the project would acquire the same amount of right of way needed to convert the corridor to a four lane highway.
Right of way would only be acquired for the needs of the current reconditioning project. No design or real estate considerations would be made for any potential future expansion project(s). The total right of way acquisition that would be required by this project is similar to the amount of right of way estimated for a 4-lane expansion alternative studied in 2001. In the 2001 Final EIS, the amount of right of way estimated for the section of WIS 164 evaluated in this Final ER was determined using proposed typical cross-sections for corridor preservation purposes. Detailed final roadway cross-sections were not developed and detailed safety clear zone distances were not analyzed for the preliminary vertical roadway profile. Design standards have also become more demanding, and it is anticipated that the actual right of way required for a four lane conversion would be substantially higher than the 2001 Final EIS estimate.

   The design team has revisited the Preferred Alternative design and made design refinements to the Preferred Alternative based on comments received at the Public Hearing. The proposed impacts and the associated right of way acquisition have been reduced. Fee Acquisition would be reduced from 42.19 acres to 38.00 acres, a reduction of 4.19 acres. Temporary Limited Easement (TLE) acquisition would be reduced from 13.50 acres to 11.70 acres, a reduction of 1.80 acres.

   Refer to Basic Sheet 2, Question 3 found in Attachment 4 for more information.

3. Concern that too much right of way is being acquired for the project.
See previous response.

4. Concern about the loss of trees along the corridor.
The Preferred Alternative would impact a substantial number of trees throughout the project corridor as a result of the grading required to flatten foreslopes and grade traversable ditches to improve the roadway safety clear zone. Many of the existing trees are too close to the road and present a safety hazard. Many of the trees are in the existing right of way and are not owned by the adjacent property owners even though they have the perception that these are their trees. Trees that would be removed from private property would be compensated for as part of the acquisition process by WisDOT, although past experience has shown that the intrinsic value of these trees is often much higher than the appraised and compensated value. The loss of trees will be appreciable in certain spot locations, but these impacts are generally on the edge of larger forested areas that will continue to dominate this rural Kettle Moraine landscape.

5. Concern that the project would lead to drainage problems.
The design team has performed a thorough analysis of the existing and proposed drainage in the project corridor. The Preferred Alternative includes measures such as ditches with flatter side slopes, flat bottom ditches, and permanent ditch checks to maintain existing drainage patterns and discharge rates from the project corridor, while still promoting positive drainage along and across the project corridor.

G. Comments Related to General Project Impact Concerns

1. Widening the lanes and flattening the hills would make the road less safe.
   Concerns have been expressed that if the road is widened and the hills are cut that traffic will travel even faster through the corridor resulting in a less safe roadway.

   The speed study performed by the UW Madison TOPS Lab indicates that the measured 85th percentile travel speeds in the corridor are already 6 to 13 mph above the posted speed limits. Higher travel speeds are not anticipated following construction since they are already substantially higher than the posted speed limits, and would not contribute to reduced safety.

   Widening the lanes from 11 feet to 12 feet will not only bring the highway up to current design standards, but will also provide the width required to install centerline rumble strips, which are a key safety feature that have been proposed with the Preferred Alternative. Refer to the response to the previously addressed comment "Disagree that 12 foot wide travel lanes are needed" (Attachment 3, Page 1, Comment B2).

   Analysis during the preliminary design phase of this project determined that not only is the road way width deficient, but the sight distance is restricted by several crest hills to distances well below the current design standards for this type of a highway facility. Refer to Basic Sheet 2, Question 1 in the section titled "Existing Highway Characteristics and Deficiencies" and the subsection titled "Vertical Curves". The crest vertical curves that are proposed for flattening include the following:

Existing Begin Station to End Station (General Location Description)	Posted Speed	Meets Minimum Stopping Sight Distance for Speed	Other Considerations
STA 57+60 to STA 67+40 (Between existing Shady Lane Intersections)	50 mph	35 mph	Reduce existing 6.68% profile grade, address sight distance from adjacent driveways and Hansen Drive intersection
STA 111+00 to STA 117+50 (Between Monches Road and Elmwood Road)	55 mph	50 mph	Reduce existing 7.93% profile grade, address sight distance from adjacent driveway
STA 189+50 to STA 198+50 (Between St. Gabriel Lane and Hubertus Road)	50 mph	50 mph	Reduce existing 7.97% profile grade, address sight distance from adjacent St. Gabriel Drive and Hubertus Road intersections and adjacent driveways.
STA 239+50 to STA 249+00 (Between Ada'Hi Court and WIS 167)	50 mph	45 mph	Reduce existing 8.00% profile grade, address sight distance from adjacent driveways and Ada'Hi Court intersection, decision sight distance to proposed roundabout at WIS 167.

   These existing highway features do not meet the expectations of a large percentage of drivers based on the operating speeds measured in the project corridor. Improvements at these locations are further supported by the crash history at these locations. The improvements proposed with the Preferred Alternative would bring these key deficiencies up to standards and would close the gap between actual travel speeds and safe stopping sight distances and intersection sight distances in the corridor.

H. Comments Related to Environmental Impact Concerns

1. Cutting down the hills would impact the Kettle Moraine view shed.
   The visual character within the project corridor would largely remain the same. A majority of the roadway cross section would remain rural with shoulders and ditches. There would be a slight widening of the roadbed throughout the project and widening at intersections for the addition of turn lanes. This widening would require the regrading of the rural ditches and the removal of some mature trees along the highway. Limited sections of curb and gutter would be introduced where beneficial to reduce impacts to the adjacent properties.

The response to Comment F4 (Attachment 3, page 6) provides more information related specifically to the impact to trees along the corridor.

Refer to Factor Sheet B-9 for more information related to the aesthetics evaluation along the project corridor.

2. Concerned about environmental corridor impacts.
The project corridor crosses two primary environmental corridors and three secondary environmental corridors. The project would have impacts along the boundary of each of the environmental corridors, but these impacts would be limited to re-grading the existing roadway side slopes where the existing environmental corridor meets the existing highway right of way. There would be no new environmental corridor crossings with this project. There would be no substantial impact to the existing environmental corridor crossings resulting from this project.

3. Concern about the amount of wetland impacts.
It is estimated that the project would impact 1.625 acres of wetlands in the project corridor. The impacted wetland area includes both fills and cuts to re-grade previous roadside ditches that have silted in and are now classified as wetlands. Much of the impacted wetland area, 1.341 acres (83%), would be in the existing highway right of way. The project design team worked to avoid wetland impacts, and where it was not possible to avoid the existing wetlands, the proposed impacts were minimized. Minimization techniques include the use of the minimum 18 foot clear zone, maximum fill slopes of 3:1, minimum shoulder width of 8 feet, and guard rail adjacent to the wetlands where practical.

   The US Army Corps of Engineers and Wisconsin Department of Natural Resources have been consulted during the development of the Preferred Alternative. Refer to Exhibit 13 and Exhibit 15 of the Draft ER for a record of this correspondence. The requirements of Section 404 of the Clean Water Act would be followed if the Preferred Alternative is implemented. A permit would be acquired for filling wetlands classified as waters of the United States. Impacted wetlands would also be mitigated. Refer to Factor Sheet C-1 in the Draft ER for more information about wetland evaluation.

4. Concerned that the project would pollute area rivers.
The Preferred Alternative has been designed in conformance with the requirements of Wisconsin Administrative Code TRANS 401, which regulates construction site erosion control and storm water management procedures for WisDOT actions. Permanent design features that would promote water quality include flattening ditch side slopes, flattening longitudinal profile slopes, providing flat bottom ditches or the installation permanent ditch checks to promote slower runoff speeds and improve vegetative filtration. Best management practices for temporary erosion control during construction would be included in the final plans and specifications for the construction project. As a further means of protecting fish during critical spawning periods, all in-stream work would be prohibited during the period from May 1 to June 30.

5. Concern that this project would increase noise pollution.
No substantial increase to noise levels at receptors within the project corridor is anticipated. A noise analysis is not required for this project. Refer to the response to Comment C3 (Attachment 3, page 4) for more information about noise analysis for highway projects.

6. Concern that this project would increase air pollution.
The preferred alternative is screened to determine whether project level evaluation of carbon monoxide (CO) emissions is required. The first screening step uses the indirect source permit exemption criteria previously established by DNR in Wisconsin Administrative Code Chapter NR 411, Construction and Operation Permits for Indirect Sources. Although NR 411 was suspended by the Wisconsin Legislature in March 2012 (based on DNR's determination that automobile CO emissions have decreased dramatically and therefore Wisconsin no longer exceeds the CO NAAQS), WisDOT, in consultation with FHWA, has elected to continue using the following exemption criteria as a screening tool for WisDOT projects:

   The WIS 164 project is in Washington County, a metropolitan county.

   The following NR 411 exemptions apply to the project:

   - For any modified road or highway segment in a metropolitan county, an increase in the peak hour volume of less than 1,200 vehicles per hour

   - Where the maximum shift in the nearest roadway edge toward any potential receptor location is 12 or more feet, and each new road or highway segment has no more than 2 approach lanes, not including exclusive turning lanes, and

any potential receptor is located at more than 25 feet from the nearest proposed roadway edge, a peak hour traffic volume on each approach of less than 1,800 motor vehicles per hour.

Projects that meet the exemption criteria do not require further evaluation for CO emission.

Additionally, the project is part of SEWRPC's conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). The project is included in the TIP as project #261.

No adverse impacts to air quality are expected to occur.

7. Concerned about impact to parks.
There would only be temporary impacts to the Richfield Historical Park and Nature Park and to the Washington County Heritage Trails County Park.

A temporary limited easement would be required at the Richfield Historical Park and Nature Park to replace the culvert pipe under the driveway to the park and re-grade the ditches adjacent to the park. All disturbed areas would be restored to their prior condition after construction and re-grading are complete. There would be no permanent changes to the park entrance, park sign, or any park land due to the proposed action. The activities, features, and attributes of the park would not be impacted or modified as part of this action.

A temporary limited easement would be required at the Heritage Trails County Park to re-grade the ditch adjacent to the park. All disturbed areas would be restored to their prior condition after the re-grading is complete. There would be no permanent changes to the park land. See Exhibit 7 – Preliminary Plan View Layouts for proposed work adjacent to Heritage Trails County Park. The activities, features, and attributes of the park would not be impacted or modified as part of this action.

See Factor Sheet B-8 for more detailed information. Exhibit 18 contains concurrence letter from the Village of Richfield and Washington County Parks Department.

8. Concerned that the project would destroy family farms.
The project impacts that would result to farm operations were presented to the Department of Agriculture, Trade and Consumer Protection (DATCP). The project team provided preliminary plans, summarized the potential farm impacts in the Agricultural Impact Notice and also completed the U.S. Department of Agriculture Farmland Conversion Impact Rating. No farm buildings would be impacted by the Preferred Alternative, and impacts to farm land would be less than 5 acres from any single farm operation. DATCP did not express concerns with the project and determined that an Agricultural Impact Statement (AIS) will not be prepared for this project. Refer to Exhibit 12 in the Draft ER for correspondence with DATCP.

The design team has revisited the Preferred Alternative design and made design refinements based on comments received at the Public Hearing. The proposed farm impacts and the associated right of way acquisition have been reduced. Fee Acquisition of farm lands would be reduced from 23.87 acres to 21.26 acres, a reduction of 2.61 acres. Easement acquisition on farm lands would be reduced from 4.92 acres to 4.43 acres, a reduction of 0.49 acres. Refer to Factor Sheet A-3 found in Attachment 4 for more information about the proposed farmland impacts.

Owners of a farm located just south of the WIS 167 intersection on the east side of WIS 164 had notable concerns about the loss of farm land and changes to their farm access that would adversely impact their farm operation. Design refinements were made following the Public Hearing to reduce the loss of land due to Fee Acquisition from this farming operation from 4.53 acres to 2.98 acres, a reduction of 1.55 acres. The plans were revised so that the existing farm access would be maintained with the Preferred Alternative. These design refinements have satisfied their concerns about impacts to their farming operation.

9. Concerned that the project would destroy historic properties.
The project team has researched potential historic resources within the Area of Potential Effect (APE) according to the requirements of Section 106 of the National Historic Preservation Act of 1966. No sites eligible for listing or sites listed in the National Register of Historic Places were identified within the APE. Three buildings located at the intersection of Pleasant Hill and WIS 164 date back to the late 19th century, but the buildings have been substantially modified such that they have lost their significance as a historical resource. Concurrence with this assessment was received from the State Historic Preservation Office. Refer to Exhibit 14.

10. Concern that the project would impact a potentially historic tunnel that was previously unknown.
The owner of the residence on the southeast corner of WIS 164 and Pleasant Hill Road brought forward new information about the property in private verbal testimony at the Public Hearing. The property owner was told shortly before the Public

Hearing that there may be an old tunnel underneath WIS 164 and or Pleasant Hill Road connecting to the home's cellar. The property owner was concerned that the proposed project may cause damage to the tunnel and foundation and present a safety issue. Further discussion with the property owner indicated that it was suggested that this tunnel may have been part of the Underground Railroad of the 19th century. The actual presence of a tunnel was unknown because the potential tunnel entrance in the cellar of the home was covered by a wood panel attached firmly to the cellar wall. This new information prompted further investigation by WisDOT.

An inspection of the property was made by WisDOT and their consultant representatives from the University of Wisconsin Milwaukee (UWM), R.A. Smith National, and Heritage Research, Ltd. (HRL) on May 22, 2014. The UWM archaeologists removed the wood panel covering the potential tunnel. The bottom of the opening was located 3.5 feet above the basement floor. Behind the panel was a wall of poured concrete. It appears that the wood panel may have served as a decorative form or cover on the basement wall when the previous opening was filled by pouring concrete from the outside or from the main level of the house. The concrete measured 52 inches wide by 83 inches high by 15 inches thick. It appeared that this concrete has been in place for several years. The wood panel was reinstalled as it was found.

The professional archaeologists from UWM and professional historian from HRL discussed what this opening may have been following the investigation. The conclusion was that the opening in the foundation wall would have led to an outside access door when this building was once a cheese factory. There is wood embedded in the basement floor, which appeared to be the bottom of steps that once led up to the opening. Based on the elevation of the opening relative to the roadway, it does not appear possible that it ever served as an entrance to a tunnel that extended into the adjacent road right of way because it would have been above the highway surface. An addition to the building, without a basement or crawl space, was constructed on the north side of the original building where this foundation opening once existed.

Research indicates that the building was likely constructed in the year 1892; therefore, the age of the building also post-dates the historical years of operation of the Underground Railroad, which ended in the mid-1860's with the Emancipation Proclamation and Thirteenth Amendment to the United States Constitution. It was concluded that no further investigation is necessary.

WisDOT has committed to doing a crack and damage survey before and after construction for this residence to address the property owners concerns about the potential effects on the home's foundation.

11. Concerned that the project would impact a Native American burial site.
    The project team has researched potential archaeological resources within the Area of Potential Effect (APE) according to the requirements of Section 106 of the National Historic Preservation Act of 1966. No sites eligible for listing or sites listed in the National Register of Historic Places were identified within the APE. The known Native American burial site that is referenced in the comments received is outside of the proposed grading limits for the Preferred Alternative. Letters were also sent to Native American interests regarding the project, and no comment letters were received. Concurrence was received from the State Historic Preservation Office. Refer to Exhibit 14.

12. Concerned that the project would destroy the rural character of the area.
    The visual character within the project corridor would largely remain the same. A majority of the roadway cross section would remain rural with shoulders and ditches. There would be a slight widening of the roadbed throughout the project and widening at intersections for the addition of turn lanes. This widening would require the regrading of the rural ditches and the removal of some mature trees along the highway. Limited sections of curb and gutter would be introduced where beneficial to reducing impacts to the adjacent properties.

    The character of the areas that this project corridor travels through will be most substantially impacted by the nature of the future development. It is the responsibility of the Village of Richfield and the Town of Polk to ensure that future development remains consistent with their approved land use plans. The land use plans for both of these communities call for continued agricultural land use, but also for some additional conversion of agricultural lands to low density residential land use. These land uses are consistent with the rural character that exists along WIS 164 today.

Attachment 4
Revised Basic Sheets and Factor Sheets

Note: Basic Sheet 1 is the first page of the Final ER. Basic Sheet 2 and all other revised Basic Sheets and Factor Sheets follow in this attachment.

Basic Sheet 2

1. Purpose and need of proposed action:

Purpose of the Project

The purpose of the proposed action is to address poor pavement condition, safety, traffic flow, and to provide for adequate bicycle facilities. The WIS 164 project is approximately 7.5 miles in length and extends from just north of County Q to just north of County E in Washington County (see Exhibits 1 and 2).

Need for the Project

The need for proposed improvements is demonstrated through a combination of factors that include regional/local transportation and land use planning, system linkage and route importance, existing highway deficiencies, traffic demand, safety concerns, and environmental aspects.

Transportation and Land Use Planning

The Southeastern Wisconsin Regional Planning Commission (SEWRPC) prepares land use and transportation plans for a seven-county region including Washington County. This planning is conducted under the guidance of various technical and advisory committees consisting of representatives from state and federal agencies; universities; municipal and county planning, transportation, and public works departments; transit groups, private utilities, and environmental organizations. Public input is obtained through newsletters, public information meetings and hearings, and publication and distribution of various informational materials.

The adopted 2035 Regional Transportation Plan indicates capacity expansion to 4 lanes for WIS 164 from the Waukesha/Washington County line (County Q) to WIS 167 and right of way reservation for a 4 lane facility from WIS 167 to WIS 60. The adopted 2035 Regional Transportation System Plan is based on population, household, and employment growth in the region, forecast growth and transportation demand, and analysis of existing transportation facilities. Traffic forecasts are based on predicted growth patterns, number and types of trips made, routes taken, travel times, and other factors such as transit use.

At the local level, the Village of Richfield (formerly the Town of Richfield) had prepared a Comprehensive Plan for the Town of Richfield (Richfield 2025). The scope of the document includes profile of the demographic, economic and housing characteristics of the Village; an inventory and assessment of the environment, community facilities, and natural resources; visions, goals, objectives, policies and implementation strategies; and a series of maps that depict existing and future land use patterns in the Village.

The Comprehensive Plan indicates that current land use (in 2005) is primarily a mix of single family residential and agricultural uses with intermittent institutional, environmental, and commercial properties. Future land use in 2025 along the project corridor is projected to be largely single family residential properties with some institutional, environmental, and commercial properties.

While the adopted 2035 Regional Transportation Plan indicates capacity expansion or right of way reservation to accommodate future improvements for WIS 164, current traffic levels are approaching but do not fully meet thresholds that require evaluation of an expansion alternative. Expansion is the addition of through travel lanes to provide additional capacity to improve the level of service of the highway. Expansion of WIS 164 was previously considered in past environmental review and related litigation. An Environmental Impact Statement was prepared for Project I.D. 2748-01-01, and the Record of Decision was approved in 2002. The past WIS 164 expansion sought to expand WIS 164 from 2 to 4 lanes. Conditions are met to consider capacity expansion, but WisDOT has decided not to pursue capacity expansion at this time. WIS 164 would remain a 2 lane highway. All proposed improvements would be related to preservation of the 2-lane highway by addressing safety, geometric, pavement, and drainage deficiencies within the project corridor. Discussion of the existing and future traffic volumes and level of service as they relate to warrants for expansion can be found under Traffic Demand on page 5 of 82 as well as section titled Level of Service & Traffic Flow on page 22 of 82 in Attachment 4 Revised Basic Sheets and Factor Sheets. Right of way acquisition proposed as part of this project would be related to the improvements needed to address safety, geometric, pavement, and drainage concerns and would not be for reservation of right of way to accommodate future expansion of WIS 164 to four lanes.

Preliminary engineering for and construction of the proposed WIS 164 highway preservation project is presently included in the Transportation Improvement Program for Southeastern Wisconsin: 2013-2016 under TIP #261. The purpose of the Transportation Improvement Program for Southeastern Wisconsin is to identify transportation improvements recommended for advancement during the 2013-2016 time frame, provide for a staging of improvements over the period 2013-2016 consistent with the regional transportation system plan, include estimates of costs and revenues for the period 2013-2016, and relate the improvements recommended in the program to the adopted 2035 Regional Transportation Plan.

System Linkage and Route Importance

WIS 164 is part of the National Highway System (NHS) as designated under the National Highway System Designation Act of 1995. The NHS includes the Interstate Highway System as well as other roads, such as WIS 164, important to the economy, defense, and mobility. The NHS was developed by the United States Department of Transportation (DOT) in cooperation with the states, local officials, and metropolitan planning organizations (MPOs).

WIS 164 is a north-south highway, functionally classified as a principal arterial. Principal arterial highways are intended to serve moderate length through trips, higher density traffic, movements between regional economic centers, and to provide access to adjacent development while maintaining a high level of through traffic mobility. WIS 164 provides a link between the suburban areas of Waukesha, Pewaukee, and Sussex, with southern Washington County. WIS 164 serves as the backbone for east-west highways that collect and distribute traffic in southern Washington County.

Existing Highway Characteristics and Deficiencies

WIS 164 is a two-lane rural roadway between County Q and WIS 60 in the Village of Richfield and Town of Polk in Washington County. The roadway is generally on tangent and aligned along a section line. The project runs through the Kettle Moraine with many hills and valleys.

Existing highway characteristics were reviewed and analyzed for compliance with the Wisconsin Department of Transportation (WisDOT) Facilities Development Manual (FDM). The FDM provides policy, procedural requirements, and guidance encompassing the facilities development process within the WisDOT Division of Transportation Systems Development (DTSD). The FDM is applicable to all types of highway improvements on the state trunk highway system, other street/highway systems for which federal-aid highway funds may be utilized, state facilities road systems funded with state funds administered by the department, and other highways and roads for which the department may act as an administrative agent. Adherence to the requirements contained in the FDM will provide for the uniform development of highway systems and plans that reflect sound engineering practice and sensitive environmental concern.

The existing conditions for this project were reviewed with respect to design criteria for resurfacing, restoration, and rehabilitation (3R) projects per the FDM. 3R projects are intended to preserve and extend the service life of existing highways and enhance highway safety. The typical scope of such projects exceeds routine maintenance but is less than new construction or reconstruction. Examples of 3R work include:

- Resurfacing
- Pavement replacement
- Pavement structural and joint restoration
- Widening of lanes and shoulders
- Selected alterations to vertical and horizontal alignment
- Intersection improvements
- Bridge rehabilitation
- Traffic control improvements
- Removal, modification or shielding of roadside hazards

3R projects should preserve the safety benefits gained from previous construction by not worsening existing roadway geometrics. However, upgrading 3R projects to comply with the minimum geometric design criteria intended for new construction and reconstruction is often impractical. Constraints include cost to benefit considerations, the need to acquire extensive right of way, and unacceptable social or environmental impacts. Therefore, the FDM contains minimum geometric design criteria that were developed for 3R projects. They are intended to provide the lower limit for applying engineering judgment in designing 3R projects.

The proposed action on WIS 164 is classified as a reconditioning, which falls within the 3R project framework and is defined in FDM 3-5-2.1.6. “Reconditioning” means work in addition to resurfacing. Minor reconditioning includes pavement widening and shoulder paving. Major reconditioning includes improvement of an isolated grade, curve, intersection or sight distance problem to improve safety. Major recondition projects may require additional right-of-way. Additional criteria for reconditioning projects include:

- Does not include increasing the number of driving lanes
- May include replacing sections of and/or expanding existing storm sewer systems
- May include continuous pavement widening or shoulder widening on rural highways
- May include subgrade widening on rural highways in order to widen pavement or shoulders without steepening side slopes, or to accommodate increased pavement structure depth due to resurfacing without steepening side slopes, or to correct a structural problem
- Does not include adding continuous lanes
- May include reconstruction not to exceed 50% of the length of the project
- May include replacement of curb and gutter in urban areas with up to 50% of new curb and gutter or on new horizontal or vertical alignment.

Examples of reconditioning projects include:

- Resurfacing plus re-grading of some individual horizontal or vertical curves
- Resurfacing plus relocating parts of the project.
- Resurfacing plus continuously widening subgrade to allow pavement or shoulders to be widened along existing horizontal and vertical alignment
- Resurfacing plus adding non-continuous (turning, climbing or passing) lanes
- Resurfacing plus continuously or intermittently grading ditches and slopes to improve drainage or flatten vehicles recovery areas
- Placing "gravel lift" (new base course) over existing pavement and a new pavement on top of that
- Resurfacing plus adding parking lanes in urban areas.

Reconditioning projects may include reconstruction of up to 50% of the project length. Reconstruction is defined in FDM 3-5-2.3.1. "Reconstruction" means total rebuilding of an existing highway to improve maintainability, safety, geometrics and traffic service. It is accomplished basically on existing alignment, and major elements may include flattening of hills and grades, improvement of curves, widening of the roadbed, and elimination or shielding of roadside obstacles. Reconstruction would rebuild the pavement structure and subgrade, and normally would require additional right-of-way. Reconstruction would provide the greatest opportunity to correct the most severe design deficiencies that cannot be addressed with the reconditioning improvement types noted above.

There are many locations along the WIS 164 corridor that meet 3R standards, but do not meet the current new construction standards for vertical sight distance, vertical grade, intersection sight distance, vision triangles, and side slopes within the clear zone. Residents expressed safety concerns and identified hazardous locations at the June 2011 public information meeting for this project. These locations, as well as other locations in the project limits that were determined to be below new construction standards or that have had higher than average crash rates, were examined for safety improvements. Several key deficiencies were identified that contribute to higher than average crash rates and crash severities for similar rural state trunk highways and correlate to areas of concern raised by public comments:

- Insufficient sight distances at several hills and intersections.
- Lack of turn lanes at most intersections
- Long waits and delays at the WIS 167 (Holy Hill Road) intersection during rush hours and weekends
- Steep slopes off the shoulders down to the ditches
- Steep grades along WIS 164

Pavement Condition

WIS 164 was constructed as County J in the early to mid-1960s with 5 to 6.5 inches of asphalt over 9 inches of aggregate base course and was overlaid with 2.5 to 3.5 inches of asphalt in 2000. The initial service life of an asphalt pavement is approximately 22 years and the service life of an asphalt overlay is approximately 12 years.

The existing asphalt overlaid pavement is in fair condition with transverse and longitudinal cracking along the project length. This cracking is deteriorating and is expected to continue to deteriorate as a higher rate until the proposed construction year of 2018.

Lane Width

The existing lanes of WIS 164 are 11 feet wide. See Exhibit 3 of the Draft ER – Existing and Proposed Typical Sections. WIS 164 is on the National Highway System, and is a state designated truck route, with 8.4% of the AADT comprised of trucks. Within the reconditioning sections of the project, a 24 foot wide traveled way (12 foot wide travel lanes) is desirable, with a minimum 22 foot wide traveled way (11 foot wide travel lanes) per FDM 11-40 Attachment 1.2 for a Design Class 3RA3 roadway. A 24 foot wide traveled way (12 foot wide travel lanes) is required (no minimum or desirable widths given) per FDM 11-15 Attachment 1.1 for a Design Class A2 reconstructed roadway.

Shoulder Width

The existing shoulders of WIS 164 are 8 feet wide. See Exhibit 3 of the Draft ER – Existing and Proposed Typical Sections. Within the reconditioning sections of the project, six foot wide shoulders are desirable for a design Class 3RA3 roadway per FDM 11-40 Attachment 1.2. FDM 11-40-1.6.1 states that existing lane and shoulder widths should not be reduced unless they exceed the new construction requirements.

Ten (10) foot wide shoulders (5 foot width paved for bike accommodation per FDM 11-45-10.3.2) are desirable for reconstruction per FDM 11-15 Attachment 1.1 for a Design Class A2 roadway.

Horizontal Alignment

The horizontal alignment of WIS 164 is generally on tangent and aligned along a section line except at the border of the Village of Richfield and Town of Polk where the section line shifts slightly. There are two horizontal curves with radii of 11,459 feet that have no superelevation. These existing curves meet both the 3R construction standards for a design speed of 55 mph and the new construction standards for a design speed of 60 mph. There are no horizontal alignment deficiencies.

Vertical Alignment

The vertical alignment along WIS 164 is rolling in nature. WIS 164 runs through the Northern Kettle Moraine, which has many hills and valleys. The vertical alignment along WIS 164 was evaluated using the Rolling Terrain criteria, which provides greater flexibility in design in areas with more challenging terrain such as the Kettle Moraine area. There are two parts to the vertical alignment that are documented below: profile grade and vertical curves.

Profile Grade

The Table 1 below lists seven locations where the profile grade along WIS 164 is steeper than new construction standards. The location and station ranges of those areas are listed below. FDM 11-40-1.5.6 states that profile grades generally do not need to be flattened on 3R projects. Steep grades and restricted horizontal or vertical curvature in combination however, may warrant corrective action.

Table 1: Substandard Vertical Profile Grades Along the WIS 164 Project Corridor

Begin Station	End Station	Design Speed	Existing Grade	Maximum Profile Grade % For Rolling Terrain (FDM 11-10 Attachment 5.3)
56+10	59+95	55	6.68%	5
102+50	114+45	55	7.93%	5
194+05	201+55	50	7.97%	5
246+55	250+90	50	8.00%	5
259+45	265+80	50	6.77%	5
414+65	420+35	55	5.86%	5
431+20	435+50	55	5.92%	5

Vertical Curves

The Table 2 below lists the vertical curves along WIS 164 within the project limits that do not meet desirable design speed criteria and notes what design speed criteria the curves do meet. Crest curves not within 15 mph of 3R design speed are required to be improved. Vertical curves that do not meet the desirable standard for reconstruction criteria were evaluated as part of the design process to determine if improvements would be needed.

Table 2: Vertical Curves along the WIS 164 Project Corridor

Begin STA	End STA	Type	3R Design Speed (mph)	Comments
53+60	57+60	Sag	55	Meets minimum for 35 mph
57+60	67+40	Crest	55	Meets minimum for 50 mph
99+50	106+00	Sag	55	Meets minimum for 45 mph
111+00	117+50	Crest	55	Meets minimum for 50 mph
189+50	198+50	Crest	50	Below desirable for 50 mph
198+50	202+00	Sag	50	Meets minimum for 40 mph
225+50	230+00	Crest	50	Below desirable for 50 mph
236+00	239+50	Sag	50	Meets minimum for 45mph
239+50	249+00	Crest	50	Meets minimum for 45 mph
250+50	251+50	Sag	50	Below minimum for 25 mph
252+25	**253+25**	**Crest**	**50**	**Meets minimum for 30 mph**
264+50	273+00	Sag	50	Meets minimum for 40 mph
297+75	301+75	Sag	50	Below desirable for 50 mph
302+75	307+75	Crest	55	Below desirable for 55 mph
411+25	416+25	Sag	55	Meets minimum for 45 mph
417+75	424+75	Crest	55	Below minimum for 55 mph
429+25	432+25	Sag	55	Meets minimum for 35 mph
433+00	443+00	Crest	55	Below desirable for 55 mph

There is one crest vertical curve from STA 252+25 to 253+25 that does not meet minimum 3R requirements since it is not within 15 mph of the 3R design speed. This curve is on the southbound approach to the WIS 167 intersection so it should also meet the minimum Category 2 K-value for 45 mph. This location is considered to be a Category 2 Sight Distance because it is a high-speed 2-lane rural highway approach to an isolated stop sign, traffic signal, or roundabout where such control is unexpected. The existing curve only meets the minimum Category 2 sight distance for 30 mph. This curve is required to be improved to meet both the Category 1 and Category 2 sight distance for the design speed.

There are also three sag curves that are not within 15 mph of the 3R design speed. The 3R design criteria do not require these curves to be improved. These curves were evaluated to verify that there is not an existing crash history and that hazards do not exist in poor weather or night time driving conditions.

Additional deficiencies

Additional deficiencies found at spot locations throughout the corridor include:

- Foreslopes (slope off the shoulder) greater than 4 feet horizontal to 1 foot vertical
- Non-traversable ditches.
- Buildings within the clear zone (near Pleasant hill Road). The clear zone is defined as that roadside border area which is made available for safe use by errant vehicles. It starts at the edge of the traveled way and consists of the shoulder, a recoverable slope off the shoulder, and any traversable but non-recoverable slope with a clear run-out area at the bottom of the slope. Fixed objects within the clear zone are to be either removed, redesigned to be safely traversable, relocated, made breakaway, shielded with a longitudinal barrier or crash cushion, or delineated.
- Driveway embankment slopes greater than 6 feet horizontal to 1 foot vertical
- Culvert pipe ends located in the clear zone that are unprotected by traversable endwalls or unshielded by guardrail
- Utility poles located in the clear zone or near ditch bottoms
- Outdated guardrail installations

Traffic Demand

Existing and future traffic (Design Year 2038) is summarized in Table 3 below. Annual Average Daily Traffic (AADT) reflects average travel conditions during the year rather than daily or seasonal fluctuations. Existing traffic volumes were derived from WisDOT's year 2013 manual count data.

Existing traffic in the WIS 164 corridor ranges from 6,700 to 9,600 vehicles per day (vpd) and is expected to reach a range of 8,500 to 13,800 vpd in Design Year 2038. Approximately 8.4% of the total AADT is truck traffic. WisDOT design guidelines in FDM 11-15 Attachment 1.1 indicate 15,000 AADT as the threshold volume that can be safely handled at an acceptable service level on a 2-lane rural/suburban highway that meets applicable/current design standards (existing WIS 164 does not meet current design standards). In Design Year 2038, all segments of the WIS 164 corridor within the project limits would have traffic volumes below this threshold. A comparison of the projected WIS 164 traffic volumes, which are approaching but less than the acceptable maximum traffic volumes for a two lane facility, indicated early on in project development that WIS 164 would remain a two lane facility. Reconditioning projects by definition in FDM 3-5-2.1.6.1 do not include increasing the number of travel lanes.

Table 3: WIS 164 Traffic Summary

Roadway Segment	Existing Traffic 2013 AADT	Future Traffic Construction Year 2018 AADT	Future Traffic Design Year 2038 AADT	Percent Increase (2013 – 2038)
County Q to Monches Road	9,600	10,400	13,800	44%
Monches Road to Hubertus Road	8,000*	8,700	10,500	31%
Hubertus Road to WIS 167	9,000	9,500	11,600	29%
WIS 167 to County E	6,700	7,100	8,500	27%
County E to North Project Limits	7,500	7,900	9,600	28%

*Most recent Existing Traffic County for Monches Road to Hubertus Road is from 2010

The analysis of existing and future operating characteristics of a facility can be measured using Level of Service (LOS) to provide an indication of the ability of the facility to satisfy both existing and future travel demand. Level of Service is a quantitative measure of the quality of service of a transportation facility. The LOS measure is stratified into six letter grades, “A” through “F” with “A” being the best and “F” being the worst. The Highway Capacity Manual (HCM) assigns LOS for 2 lane rural highway segments based on two factors: percent time spent following and average travel speed.

The existing LOS is LOS D and the projected LOS without improvements in the design year 2038 varies from LOS E (typical) to LOS D (north of CTH E only). The LOS is based on a basic Highway Capacity Manual (HCM) 2010 two-lane highway analysis and does not include intersection operations. It is assumed that speed limit, access density, and percent no passing would remain constant along WIS 164 between present day and the design year.

The section of WIS 164 within the limits of the proposed action is a principal arterial that is part of the NHS. Table 3.1 of FDM 11-5-3.2 indicates that the acceptable level of service for NHS routes in rural and small urban areas is LOS C. FDM 11-5-3.3 notes that incremental highway improvements are one of the most cost effective ways to improve the system, and additional through lanes are considered a last resort. Incremental improvements are discussed further in Question 2 with the description of the Preferred Alternative. Substantially improving the corridor LOS would require the addition of through travel lanes and is not considered part of the purpose for this project.

The primary focus of the proposed action is to address the poor pavement condition and safety in the corridor. Improving traffic flow is also an important consideration; especially at locations where traffic congestion and poor traffic operations have contributed to a crash history. Traffic flow can be defined as the number of vehicles passing a given point in a given time. Traffic flow is just one part of the corridor LOS computation, and can be quantified by the predicted average travel speed and by intersection delay experienced by travelers in the corridor during peak travel periods. Traffic flow can be incrementally improved with the types of improvements typically considered with reconditioning projects such as widening travel lanes, widening shoulders, reducing access points, and making intersection improvements.

In addition to traffic flow, corridor LOS also considers percent time spent following, which can only be improved by flattening hills or adding additional through travel lanes or passing lanes to increase safe passing opportunities. Improving traffic flow can incrementally improve LOS, but because it is only one part of the LOS analysis, achieving a desirable LOS C is not expected with this project.

Cross road intersections present the greatest obstruction to traffic flow through the corridor. The existing four-way stop controlled intersection of WIS 164 with WIS 167 (Holy Hill Road) presents the greatest obstruction to traffic flow during peak travel times. Most of the intersections in the project corridor are substandard because they do not have turn lanes or bypass lanes, and these deficiencies contribute to reduced traffic flow along WIS 164. Wider travel lanes and shoulders as well as the reduction in the number of access points also contribute to improved traffic flow. Improvements are needed in the WIS 164 corridor to help address the current and projected traffic demand without additional capacity.

Safety

A summary of the reported crashes along WIS 164 within the project limits between the years 2008 and 2012 is provided in Tables 4 5 and 6 below. During this time period there were a total of 118 crashes including 39 injury crashes and 2 fatal crashes. The overall crash rate is 63% higher than the statewide average for similar 2-lane rural highways during this time period. Approximately 58% of the crashes occurred at intersections, and 42% occurred between intersections. Both fatal crashes occurred between intersections. Approximately 62% of the injury crashes occurred at intersections, and just 38% occurred between intersections. An injury resulted 35% of the time when a crash occurred, which is 45% higher than the statewide average for 2-lane rural highways.

Table 4: WIS 164 Crash Summary

Year	Crash Rate[1]	Statewide Crash Rate[1]	Number & Severity of Crashes			
			Fatal	Injury	Property Damage	Total
2008	124		1	12	12	25
2009	129		1	9	15	25
2010	43		0	4	5	9
2011	144		0	8	22	30
2012	139		0	6	23	29
5 Year Average	116	71[(2)]	0.4	7.8	15.4	23.6

[(1)] Crash rate based on 100 million vehicles miles traveled (100 MVMT).

[(2)] Statewide crash rates are divided into 12 functional "peer" groups (i.e. "like" roadways) and are provided on a 5 year average. State Trunk Highway crash rate (5-year average, 2008 – 2012) for a rural WIS with 3,500 to 8,700 ADT is 71 crashes per 100 million vehicle miles traveled (100 MVMT).

Crash totals exclude deer crashes

Table 5: Crash Locations or Patterns of Concern

Location or Pattern	Year	Number & Severity of Crashes				Crash Rate	Possible Factors Contributing to Crashes
		Fatal	Injury	Property Damage	Total		
WIS 164 Mainline Non-intersection Crashes[3]	2008	1	6	4	12[3]	N/A	6 weather/wet road conditions.
WIS 164 Mainline Non-intersection Crashes[3]	2009	1	4	7	12[3]	N/A	5 weather/wet road conditions.
WIS 164 Mainline Non-intersection Crashes[3]	2011	0	4	14	18[3]	N/A	10 weather/wet road conditions.
WIS 164 Mainline Non-intersection Crashes[3]	2012	0	1	14	15[3]	N/A	9 weather/wet road conditions.
WIS 164/Hubertus Rd. Intersection	2008-2012	0	5	6	11	0.49[1]	8 weather/wet road conditions, 6 angle crashes; limited intersection sight distance, steep grade
WIS 164/WIS 167 Intersection	2008-2012	0	3	15	18	0.70[1]	6 weather/wet road conditions, 7 angle crashes, 6 rear end crashes; steep grade, congested 4-way stop controlled intersection
WIS 164 - Hubertus Rd. to 2,500' North of WIS 167	2008-2012	0	12	28	40	207[2]	23 weather/wet road conditions
WIS 164 - Monches Rd. to Elmwood Rd. Segment	2008-2012	1	10	16	27	183[2]	12 weather/wet road conditions

[1] Crashes per million entering vehicles (MEV)
[2] Crash rate based on 100 million vehicles miles traveled (100 MVMT)
[3] Mainline excludes crashes which occurred within intersections

Both of the fatalities involved vehicles crossing the centerline, however there is no common factor for the vehicles deviating from the travel lane. Pavement conditions (snow/ice) and vertical profile were a factor in one of the crashes. The higher than average crash rate and high number of weather related crashes may indicate less than desirable pavement surface condition.

Between Monches Road and Elmwood Road, there were a total of 27 crashes, with 12 crashes resulting from a vehicle losing control during snowy/icy or wet conditions, including 1 fatality. WIS 164 has a vertical crest and a steep 8% profile grade in this location, which contributed to the crashes.

Five intersections on this project had seven or more crashes during the 2008-2012 timeframe and they are summarized in Table 6 below.

Table 6: Summary of Intersections with Seven or More Crashes (Years 2008 through 2012)

Intersection	Total Number of Crashes (Crash Trend - If Any)	Explanation of Crash Trends
Elmwood Road and WIS 164	7 (Included 5 Angle Crashes)	No noted commonality documented in the crash reports. The profiles of both WIS 164 and Elmwood Road are flat at this intersection. Furthermore, the horizontal alignment of both roadways is straight. The narrow roadway and lack of turning or bypass lanes may contribute to crashes at this intersection.
Hubertus Road and WIS 164	12 (Included 5 angle crashes)	There is a vertical crest on WIS 164 south of Hubertus Road. Limited intersection sight distance, steep grades, and lack of turning or bypass lanes may contribute to crashes at this intersection.
WIS 167 and WIS 164	18 (Included 6 rear end and 7 angle crashes)	Long queues at the intersection and limited stopping sight distance approaching the intersection may contribute to crashes at this intersection.
Pioneer Road and WIS 164	8 Included (4 angle and 4 rear end crashes)	The profiles of both WIS 164 and Pioneer Road are flat at this intersection. There is a set of reverse horizontal curves on WIS 164, but they met design standards. The lack of turning or bypass lanes and relatively high turning volumes at this intersection may contribute to crashes.
County E and WIS 164	8	There is no noted commonality in these crashes, but there has been a history of vehicles traveling eastbound on County E missing the stop sign at WIS 164 and travelers leaving the roadway east of WIS 164 at this tee intersection.

Bicycle Accommodations

From the *US DOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations,* the Federal policy for providing bicycle and pedestrian accommodation is as follows: "The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes." Additionally, from 23 US Code § 217 (g)(1), "Bicyclists and pedestrians shall be given due consideration in the comprehensive transportation plans developed by each metropolitan planning organization and State in accordance with sections 134 and 135, respectively. Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities, except where bicycle and pedestrian use are not permitted."

Administrative Code Trans 75, which became effective on January 1, 2011, prohibits WisDOT from funding a new construction or reconstruction project without bicycle and pedestrian accommodations unless there is an approved exception. The WisDOT policy for other project types, such as resurfacing or reconditioning, requires an evaluation to include bicycle and pedestrian accommodations where possible/practical within the scope of the project. While this reconditioning project is exempt from the requirement to add bicycle or pedestrian facilities, bicycle accommodations would be provided via the 6-foot wide paved shoulder.

2. **Summary of alternatives considered and if they are not proposed for adoption, why not**:

No Build

This alternative would perpetuate the existing roadway without any changes to the physical dimensions of the roadway. This alternative would include stop-gap repair procedures such as patching of potholes or other severely deteriorated areas. Other than temporarily improving the spot problem locations, this alternative would not address

the need to correct the identified deficiencies of the existing facility that have been identified to contribute to the safety concerns in the project corridor, and as such, is not recommended as the preferred alternative. The No Build Alternative does not meet any of the stated purpose and need goals for the project, and it is therefore not selected as the preferred alternative. The No Build Alternative serves as a baseline for a comparison of impacts related to the other alternatives.

Speed Limit Reduction

Comments were received at the public information meetings and the public hearing supporting an alternative wherein the speed limit is lowered and no roadway improvements would be made. FHWA Publication No. FHWA-RD-97-084 shows that lowering speed limits at many locations studied nationwide had essentially no effect on driver speeds. A study done by the UW TOPS Lab in June of 2010 shows that many drivers do not comply with existing posted speed limits nor to the existing speed feedback signs in the 55 mph areas currently on WIS 164. This study along with common established engineering practice recommends that lowering the speed limits would be expected have little to no effect on driver speeds.

Transportation Research Board Special Report 254 notes that the perceived reasonableness of a speed limit affects both compliance and crash involvements. Sites with reasonable speed limits were safer than those with speed limits 5 to 10 mph below the reasonable levels. Transportation Research Record 1213 by Garber and Gadiraju titled “Factors Affecting Speed Variance and Its Influence on Accidents” further concludes that the difference between the design speed and the posted speed limit has an effect on the speed variance for all types of highways, and that the crash rates on highways increase with increasing speed variance. These studies indicate that lowering the speed limit on WIS 164 would lead to an increase in speed variance among drivers that will on one extreme obey the posted speed limit and on the other extreme will drive at a higher speed that feels comfortable for the driving conditions regardless of the posted speed limit. The speed study completed by the UW TOPS Lab already shows a lack of compliance with the current posted speed limits indicating that much of the traveling public already feels that the current posted speed limits are too low. Research indicates that an increase in speed variance will result in an increase in crashes.

Safety concerns related to the current speed variance among vehicles traveling in the WIS 164 corridor has been expressed by residents along the project corridor. Residents that regularly enter WIS 164 from side roads or driveways noted that it can be difficult to judge a safe gap to enter traffic because some drivers conform to the current speed limits while others exceed it substantially. Drivers that conform to the posted speed limits are often followed too closely by traffic, which can result in unsafe passing attempts or long platoons of tailgating drivers that feel a higher travel speed is appropriate. Speed variance is anticipated to increase with a reduction in the posted speed limits.

As such, the alternative to lower the speed limits alone on WIS 164 with no geometric improvements does not meet the projects goals to improve safety, nor does it respond to public comments from the first public information meeting regarding the need to improve safety on this corridor. This alternative also does not address pavement condition, operational deficiencies, bicycle accommodations, or roadside safety and drainage deficiencies. Therefore, this alternative would not meet any of the purpose and need goals of the project, and is therefore not selected as the preferred alternative.

Maintenance Overlay Only

This alternative would consist of removing the top 2-inches of asphalt pavement by milling and placing a 2-inch asphalt overlay on the roadway. A 2-inch mill would be required to prevent raising the pavement surface, which would result in even steeper side slopes and more design deficiencies in the project corridor. Spot safety and operational improvements, such as the re-grading of some individual horizontal or vertical curves, relocating parts of the project, continuously widening subgrade to allow pavement or shoulders to be widened along existing horizontal and vertical alignment, adding non-continuous turning lanes, continuously or intermittently grading ditches and slopes to improve drainage or flatten vehicles recovery areas, and bicycle accommodations would not be included. This alternative would address the near- to mid-term pavement deficiencies without changes to the physical dimensions of the roadway or intersections. Other than a more permanent solution to improving the pavement surface and minor surface drainage problems, it does not address operational deficiencies, bicycle accommodations, or roadside safety and drainage deficiencies. Therefore, this alternative would not meet most of the purpose and need goals of the project, and is therefore not selected as the preferred alternative.

Reconditioning with Spot Safety and Geometric Improvements (Preferred Alternative)

The reconditioning alternative with spot safety and geometric improvements would generally include the following improvements throughout the project limits:

- Mill the existing asphaltic surface of the roadway and placing an new HMA pavement surface
- Widen the roadway to meet desirable lane and shoulder widths
- Include bicycle accommodations via a paved shoulder
- Correct steep side slopes

Examples of spot safety and geometric improvements that would be incorporated at specific locations within the project limits that do not require full roadway reconstruction include the following:

- Add or lengthen turn lanes and bypass lanes at intersections
- Improve intersection radii to accommodate turning vehicles without lane encroachments
- Replace outdated guardrail installations
- Extend culverts or relocate hazardous objects such as utility poles outside the clear zone

Correction of the most severe design deficiencies that cannot be addressed with the improvement types noted above would require reconstruction of some roadway segments. Reconstruction of these roadway segments would include the removal of the existing roadway and would completely rebuild the roadway from the bottom up. A new roadway subgrade would be graded, and a completely new base and pavement section would be installed. Reconstruction would allow the roadway to be constructed on a new vertical and or horizontal alignment. Reconstruction would allow the following types of improvements to be made:

- Improve the stopping sight distance by cutting hill crests
- Improve intersection sight distance by cutting hill crests or by moving intersections
- Reduce profile grade by flattening the approach to crest hills
- Improve the intersection type or location by reconstructing the intersection and approaches

Desirable design standards are highly recommended for implementation in reconstruction segments. The added investment made in reconstructing a roadway segment rather than simply resurfacing or making a less costly spot improvement warrants the use of higher design standards unless substantial impacts would result. If substantial impacts would result from the use of reconstruction standards, then 3R design standards can be applied to a specific location, but must be documented and approved in the Design Study Report.

Reconstruction would be reserved for the most severe deficiencies in the project corridor that have been identified as contributing to a crash history at a specific location. Reconstruction provides the greatest flexibility to address deficiencies and provide an improved roadway segment within the project corridor. The added cost and impacts associated with reconstruction would be balanced with the need to address geometric deficiencies, intersection operations and safety concerns at specific locations.

As part of the reconditioning alternative, several sub-alternatives were considered for intersection improvements to correct geometric and safety deficiencies at the Shady Lane, WIS 167, and Pleasant Hill Road intersections with WIS 164.

Shady Lane/WIS 164 Intersection

Shady Lane currently intersects WIS164 in two locations within 900 feet of each other. The intersections have the following notable design deficiencies:

- Both intersections have a substandard intersection angle
- Neither intersection has a bypass lane
- Neither intersection has a right turn lane
- Intersection sight distance at both intersections is limited by the substandard crest vertical curve on WIS164 between the intersections
- There are trees within the vision triangle of the existing northern intersection that also restrict intersection sight distance

Despite these deficiencies noted above there is no substantial crash history at either intersection. There were two intersection crashes at these locations between the years 2008 and 2012, but many near crashes, or “close calls”, were reported by residents at these intersections. The vertical alignment of WIS 164 is recommended to be improved by cutting the crest vertical curve and reducing the approach grades to improve sight distance along WIS 164 as part

of the reconditioning project independent of any of the intersection deficiencies at the Shady Lane intersections. Both Shady Lane intersections would either need to be reconstructed to match the new profile of WIS164, or eliminated with the project. Residents along Shady Lane have indicated a concern for safety of the two Shady Lane intersections with WIS 164.

Current design standards require reconstructing the substandard intersections as Type D Intersections with right turn lanes and bypass lanes. The following alternatives were developed and evaluated (see Exhibit 4 Shady Lane Alternatives) and Table 7:

Alternative 1: Improve southern intersection to current design standards, close northern intersection
Alternative 2: Improve northern intersection to current design standards, close southern intersection
Alternative 3: Realign Shady Lane to Hansen Drive, close both intersections

Alternative 1 would remove one conflict point on WIS 164 through the elimination of one intersection and increase the intersection spacing between the two remaining intersections along WIS164. It would also allow the bypass lane for Shady Lane to end before the right turn lane taper for Upland Drive begins. Left turning vehicles would not be waiting on the back side of a crest curve as they would with Alternative 2, which was a concern expressed by residents at the public information meetings. Drivers turning right from Shady Lane to go southbound on WIS 164 would still have limited sight distance due to the crest curve north of the intersection, but with the proposed reconstruction of the crest vertical curve the intersection would meet desirable intersection sight distance for the design speed. Residents on the north end of Shady Lane traveling to and from the north on WIS 164 would be required to travel an additional 900 feet to the intersection to the south, since the north intersection would be eliminated.

Alternative 2 would remove one conflict point on WIS 164 through the elimination of one of the Shady Lane intersections with WIS 164. Two intersections, Shady Lane and Hansen Drive, would remain spaced too closely to each other. This alternative would also require northbound traffic on WIS 164 turning left at Shady Lane to wait for an opening to turn across WIS 164 on the back side of a crest curve. This was a concern raised by several residents at the public information meetings. The vertical curve would be improved to meet stopping sight distance requirements, which would improve this existing condition. Since the majority of drivers in and out of Shady Lane are likely traveling to and from the south this alternative would require drivers to drive 900 feet further to reach their destination. The bypass lane for Shady Lane would become a right turn only lane for Upland Drive. Special signing and pavement marking would be required to address this less than desirable geometry.

Alternative 3 (Preferred) would remove two conflict points on WIS 164 through the elimination of both Shady Lane intersections and would re-route Shady Lane traffic to Hansen Drive to access WIS 164. This alternative would move left turning traffic north of the crest curve on WIS 164 between the existing Shady Lane intersections. This would eliminate the concerns noted by Shady Lane residents at the public information meeting about waiting to turn left on the back side of the crest vertical curve. Since most drivers in and out of Shady Lane are likely traveling to and from the south this alternative would require drivers to drive approximately 700 to 1,500 feet farther to reach their destination. The Village of Richfield has expressed concern with this alternative because it would create a long cul-de-sac that would violate the Village of Richfield ordinance for maximum cul-de-sac length. It was discussed with the Village that a gated emergency access could be added on WIS164 at the cul-de-sac to provide another point of entry to Shady Lane if there was an emergency.

Table 7: Estimated Costs and Impacts for the Shady Lane Intersection Alternatives

	Alternative 1	Alternative 2	Alternative 3 (Preferred)
Real Estate Acquisition	2.31 acres	2.36 acres	2.86 acres
Construction Cost[1]	$380,000	$405,000	$385,000
Relocations			
Residential	0	0	0
Business	0	0	0
Farmland Impacts	0.34 acres	0.34 acres	0.34 acres
Wetland Impacts	0 acres	0 acres	0 acres
Stream Crossings Impacted	No	No	No
Endangered Species Impacted	No	No	No
Other Environmental Impacts:			
Primary Environmental Corridor	0 acres	0 acres	0 acres
Secondary Environmental Corridor	0.55 acres	0.60 acres	0.55 acres
Isolated Natural Area	0 acres	0 acres	0 acres
Historical Sites Impacted	0	0	0
Archeological Sites Impacted	0	0	0

[1]Construction cost assumes $2.1 million dollars per mile of roadway along the centerline. It does not include the cost to cut down the hill on WIS 164 at Shady Lane or to resurface the existing WIS 164 lanes.

There was general support for Alternative 3 from the Shady Lane residents that attended the second public information meeting. There was not a lot of opposition to the added travel distance to access WIS 164 because they recognized the benefit of the improved intersection sight distance at the Hansen Drive/Upland Drive intersection.

The Village of Richfield was not in favor of Alternative 3 since it would result in a cul de sac with a length of approximately 1,500' and serving 8 residents. Village ordinance 66.06(C)(1) states: "*Cul-de-sac streets designed to have one end permanently closed shall not, as a general rule, exceed 800 feet in length as measured from the point of radius of the turnaround to the nearest intersecting street and, in no case, shall more than nine single-family dwelling unit lots abut and have direct access to a cul-de-sac street. All cul-de-sac streets designed to have one end permanently closed shall terminate in a circular turnaround.*"

Alternative 3 is the preferred alternative for improvements at the Shady Lane/WIS 164 intersections. Alternative 3 provides the best compromise of the three alternatives considered because it:

- Would eliminate two points of conflict on WIS 164 at the the north and south Shady lane intersections
- Would provide a location for Shady Lane residents to access WIS164 with acceptable intersection sight distance at Hansen Drive

Intersection Level of Service was not a consideration in screening the Shady Lane intersection alternatives because improvements at the Shady Lane intersection were recommended to address geometric deficiencies rather than any known operational deficiencies.

Alternatives 1 and 2 would generally meet the purpose and need goals for the project, but evaluation of the three alternatives considered at this location determined that Alternative 3 would address the safety concerns more thoroughly than Alternatives 1 or 2. Alternative 3 is selected as the preferred alternative at the Shady Lane/WIS 164 intersection because it would address the safety concerns and the purpose and need of the project more thoroughly than Alternatives 1 or 2 and would have similar impacts.

WIS 164/WIS 167 Intersection

The WIS 167/WIS 164 Intersection has the following notable design deficiencies:

- The existing 4-way stop controlled intersection lacks the traffic capacity required for the existing traffic volumes causing lengthy backups on WIS 164 and WIS 167 during peak traffic periods
- There is a pattern of rear end crashes approaching the intersection
- There are steep grades on WIS 164 approaching WIS 167

- Sight distance to queuing vehicles on the south leg of the WIS 164/WIS 167 intersection is below desirable standards

A Year 2038 operational analysis was conducted for all-way stop, traffic signal, and roundabout alternatives. The highest turning volumes are expected to occur to/from the east. Southbound/eastbound traffic volumes are expected to be somewhat higher in the morning peak and northbound/westbound traffic volumes are expected to be somewhat higher in the evening peak (commuter split). Traffic volumes are expected to follow typical seasonal fluctuations (i.e. higher volumes in the summer months and lower volumes in the winter months).

Level of Service (LOS) at an intersection is a quantitative measure that refers to the overall quality of flow ranging from very good, represented by LOS A, to very poor, represented by LOS F. LOS is based on control delay of vehicles arriving at the intersection during the analysis period. The stop and signal control LOS was based on Highway Capacity Manual (HCM) methodologies using Synchro software. The LOS reported for the roundabout was based on a Rodel analysis. Based on WisDOT Southeast Region policy, LOS D is considered the acceptable minimum at intersections for design purposes. LOS D represents control delays of less than 35 seconds per vehicle for stop control and less than 55 seconds for signal control. The LOS D threshold for a roundabout varies between these two thresholds depending on the intersection control comparison.

Select movements for the all-way stop control alternative are expected to operate unacceptably at LOS E and F conditions under the Year 2038 traffic volumes. Therefore, stop control was not considered a viable intersection control alternative and was not further evaluated.

The following intersection control alternatives were developed and evaluated (See Exhibit 5 – WIS 167 Alternatives) and Table 8:

Alternative 1: Roundabout
Alternative 2: Traffic Signal

Alternative 1 (Preferred) would reconstruct the intersection as a modern single lane roundabout. The roundabout alternative would operate acceptably at LOS A conditions under the Year 2038 traffic volumes and would operate with minimal delay.

Alternative 2 would reconstruct the intersection with turn lanes and traffic signal control. The traffic signal control alternative is expected to operate acceptably at LOS B or better conditions. A signal warrant analysis was performed at the study intersection based on the Eight-Hour Warrant (Warrant 1), Four-Hour Warrant (Warrant 2), and Peak Hour Warrant (Warrant 3), as outlined in the *Manual on Uniform Traffic Control Devices (MUTCD)*, 2009 edition. All three warrants were met under the existing traffic conditions.

Table 8: Estimated Costs and Impacts for the WIS 167 Intersection Alternatives

	Alternative 1 Roundabout (Preferred)	Alternative 2 Traffic Signal
Real Estate Acquisition	6.3 acres	6.8 acres
Construction Cost[1]	$2,120,000	$2,530,000
Relocations		
Residential	1	1
Business	0	0
Farmland Impacts	3.63 acres	3.37 acres
Wetland Impacts	0.01 acres	0 acres
Stream Crossings Impacted	No	No
Endangered Species Impacted	No	No
Other Environmental Impacts		
Primary Environmental Corridor	0 acres	0 acres
Secondary Environmental Corridor	0 acres	0 acres
Isolated Natural Area	0.18 acres	0.12 acres
Historical Sites Impacted	0	0
Archaeological Sites Impacted	0	0

[1]Construction cost assumes $2.1 million dollars per mile of roadway along the centerline

Although both intersection alternatives would operate with minimal delay, the roundabout alternative would be expected to provide shorter delays and queues than the signalize intersection alternative.

Due to lower vehicle speeds, a reduction in number of conflict points, and the elimination of potential high-speed angle crashes, the roundabout alternative would be expected to provide safer vehicular operations when compared the traffic signal control alternative. Based on a study by the Insurance Institute for Highway Safety, U.S. roundabouts decreased fatal crashes by 90% and injury crashes by 76%.

All of the crashes occurring at the study intersection involved an angle or rear-end collision. The traffic signal alternative is not expected to address these crash types. The roundabout alternative would be expected to eliminate a majority of the angle crashes. Reducing crashes can provide an improved quality of life and economic benefits to a community. A severe injury crash represents an economic loss of nearly $63,500 and a fatal crash represents a loss of $1.3 million (FDM 11-26, Table 15.1).

The traffic signal alternative would restrict several driveways located near the intersection to right-in/right-out. Restriction of these access points is expected to improve safety at the intersection but reduce access to adjacent properties. The roundabout can provide full access to the residential access points through the use of shorter splitter islands or an island cut through.

Alternative 1, the roundabout alternative, is the preferred alternative for the WIS 164 intersection with WIS 167 because it provides a safety advantage, fewer impacts, better access to abutting properties, and lower costs as compared to the traffic signal alternative. The traffic signal alternative (Alternative 2) would generally meet the purpose and need goals for the project, but evaluation of the two alternatives considered at this location determined that the roundabout alternative (Alternative 1) would address the traffic flow and safety concerns more thoroughly than traffic signal alternative (Alternative 2). The roundabout alternative (Alternative 1) is selected as the preferred alternative for the WIS 167/WIS 164 intersection because it would address the traffic flow, safety concerns, and the purpose and need of the project more thoroughly than the traffic signal alternative (Alternative 2) and would have similar impacts.

Pleasant Hill Road/WIS 164 Intersection

The intersection of WIS 164 and Pleasant Hill Road has the following notable deficiencies:

- Substandard intersection sight distance
- No vision triangles
- Obstructions in the clear zone
- No right turn lanes or bypass lanes

Buildings are located immediately adjacent to the roadway in three of the four intersection quadrants. The buildings in the northeast, northwest, and southeast quadrants of the intersection are within the 18 foot minimum 3R clear zone. The posted speed limit on WIS 164 has been lowered to 40 mph through this intersection to account for the substandard intersection features, but driver compliance with the reduced posted speed is low.

Two crashes were reported at this intersection between the years 2008 and 2012. Historically crashes at this intersection have resulted from a vehicle on Pleasant Hill Road failing to yield to traffic on WIS 164. There is also a history of vehicles striking one of the buildings adjacent to the intersection as a result of the crash. There have been many additional close calls that did not result in a crash at the intersection according to comments received at the public information meetings.

Current design standards would require upgrading the intersection to a Type B1 intersection with a minimum of 300 foot right turn lanes in a resurfacing segment, or 450 foot right turn lanes if the intersection would be reconstructed. Buildings on all three corners would need to be razed to add the turn lanes unless WIS164 would be realigned or the Pleasant Hill intersection would be moved to the north of south. The following alternatives were developed and evaluated (See Exhibit 6 – Pleasant Hill Road Alternatives) and Table 9:

Alternative 1: Add turn lanes to WIS164 without shifting the roadway, resurface WIS164
Alternative 2: Realign Pleasant Hill Road north of the current intersection location, resurface WIS164
Alternative 3: Realign Pleasant Hill Road south of the current intersection location, resurface WIS164
Alternative 4: Realign WIS164 approximately 30 feet west at the Pleasant Hill Road intersection

Alternative 1 would improve the clear zone, would provide adequate intersection sight distance and would provide right turn lanes at the intersection, but would also require the relocation of 5 parcels including a business. At the first public information meeting the owner of the tavern on the northeast corner and the owner of the residential parcel in the southeast quadrant indicated that they do not want to be relocated.

Alternative 2 would improve the intersection sight distance to meet desirable standards, would provide vision triangles, and would provide right turn lanes at the intersection. The first horizontal curve on Pleasant Hill Road south of WIS 164 would need to be posted at 30 mph to minimize the impacts of the realigned roadway to surrounding parcels. This is the only alternative considered that would have no relocations. The realigned roadway would pass through farm fields and undeveloped land. Part of the realignment would move traffic from Pleasant Hill Road into a developing subdivision using Steeple Drive and Majestic Drive to access WIS 164. This would be controversial in this relatively new and developing subdivision since the property owners would have had no reason to think that Pleasant Hill would be realigned through the subdivision when they purchased their property. The realigned roadway would sever the farm field into two pieces making it harder for the owner to farm this field. Alternative 2 would not address the clear zone issues at the existing intersection. Guardrail could be installed along the east and west side of the roadway to shield the buildings, but the roadway and guardrail would still be very close to the buildings. The existing residential and commercial access points would be closed and relocated to the proposed Pleasant Hill Drive cul-de-sacs.

Alternative 3 would also improve the intersection sight distance to meet desirable standards, would provide vision triangles, and would provide right turn lanes at the intersection, but the new Pleasant Hill Road alignment would go through a much more developed area. There would be one residential relocation with this alternative, and the roadway would be relatively close to two other houses. The owner of the residential relocation with this alternative has expressed strong opposition to Alternative 3. Alternative 3 would not address the clear zone issues at the existing intersection. Guardrail could be installed along the east and west side of the roadway to shield the buildings, but the roadway and guardrail would still be very close to the buildings. The existing residential and commercial access points would be closed and relocated to the proposed Pleasant Hill Drive cul-de-sacs.

Alternative 4 (Preferred) would improve the intersection sight distance to meet desirable standards, would provide vision triangles, and would provide right turn lanes at the intersection by shifting the centerline of WIS 164 west approximately 30 feet. The realignment would require the relocation of two residential parcels; one in the south west quadrant and one in the northwest quadrant of the intersection. Both of these property owners have indicated that they would not be opposed to being relocated. Alternative 4 is the only alternative, besides Alternative 1, that eliminates all of the buildings from the clear zone without guardrail. In addition to the two residential relocations, Alternative 4 requires real estate strip takings only from the parcels adjacent to WIS 164. Access to the remaining residential and commercial parcels would remain the same with this alternative.

Summary of Pleasant Hill Road/WIS 164 Intersection Alternative Impacts

Table 9: Estimated Costs and Impacts for the Pleasant Hill Road Intersection Alternatives

	Alternative 1	Alternative 2	Alternative 3	Alternative 4 (Preferred)
Real Estate Acquisition[1]	3.22 acres	3.83 acres	5.72 acres	2.68 acres
Construction Cost[2]	$530,000	$990,000	$1,530,000	$1,340,000
Relocations				
Residential	4	0	1	2
Business	1	0	0	0
Farmland Impacts	0.59 acres	3.77 acres	0.75 acres	0.25 acres
Wetland Impacts	0.04 acres	0.02 acres	0.31 acres	0.06 acres
Stream Crossings Impacted	No	No	No	No
Endangered Species Impacted	No	No	No	No
Other Environmental Impacts				
Primary Environmental Corridor	0 acres	0 acres	0.17 acres	0 acres
Secondary Environmental Corridor	0 acres	0 acres	0 acres	0 acres
Isolated Natural Area	0 acres	0 acres	0 acres	0 acres
Historical Sites Impacted	0	0	0	0
Archaeological Sites Impacted	0	0	0	0
Adequate Clear Zone Provided	Yes	**No**	**No**	Yes
Adequate Intersection Sight Distance Provided	Yes	Yes	Yes	Yes
Adequate Turn Lanes Provided	Yes	Yes	Yes	Yes

[1]Real Estate required estimate includes land required to realign the intersection, add cul-de-sacs, and add turn lanes. The total acreage of each relocation parcel is included in the total Real Estate Acquisition area for each alternative.
[2]Construction Cost assumes $2.1 million dollars per mile of roadway along the centerline for reconstruction and $450,000 per mile or roadway along centerline for resurfacing.

There was general support for Alternatives 1 and 4 at the second public information meeting.

Alternative 4 is the preferred alternative for improvements to the Pleasant Hill Road/WIS 164 intersection. This alternative is not the least expensive option, but the higher construction cost would be offset with lower real estate costs than Alternative 1 since there are fewer relocations. Alternative 4 provides the best compromise of the four alternatives considered because it:

- Would correct all of the substandard design features at the intersection
- Would have fewer relocations than Alternative 1
- Would not affect the subdivision traffic on Majestic Drive like Alternative 2
- Would cost less to construct than Alternative 3
- Would fully address the issues related to the buildings being so close to the road, unlike Alternatives 2 and 3 where the buildings would be protected by guardrail but would remain close to WIS164
- Would not substantially change access for the residences and business that would remain like Alternatives 2 and 3

Intersection Level of Service was not a consideration in screening the Pleasant Hill Road intersection alternatives because improvements at the Pleasant Hill Road intersection were recommended to address geometric deficiencies rather than any known operational deficiencies.

Alternatives 1, 2 and 3 would generally meet the purpose and need goals for the project, but evaluation of the four alternatives considered at this location determined that Alternative 4 would address the traffic flow, existing highway deficiencies, and safety concerns more thoroughly than Alternatives 1, 2 or 3. Alternative 4 is selected as the preferred alternative from the Pleasant Hill Road/WIS 164 intersection because it would address the traffic flow, existing highway deficiencies, safety concerns, and the purpose and need of the project more thoroughly than Alternatives 1, 2 or 3 and has similar impacts or less impact than the other alternatives.

Right of way acquisition would be anticipated throughout the WIS 164 project corridor to accommodate the intersection and geometric improvements that would address safety and operational issues; regrading of ditches along nearly the entire corridor to improve drainage, reduce steep side slopes, and address ditch traversability issues; and increased storm water management requirements including right of way for ditches with flatter side slopes, flat bottom ditches, and permanent ditch checks. Right of way acquisition for these types of improvements would be typical for this level of highway improvement.

Traffic information for WIS 164 is presented in Basic Sheet 6 the Traffic Summary Matrix. The projected traffic volumes, traffic factors, and the projected level of service shown in the matrix would be the same for each alternative presented above including the No Build, Speed Limit Reduction, Maintenance Overlay Only, and Reconditioning with Spot Safety and Geometric Improvements alternatives. The existing posted, future posted, and design speeds shown in the Traffic Summary Matrix are for the No Build, Maintenance Overlay Only, and Reconditioning with Spot Safety and Geometric Improvements alternatives. Under the Speed Limit Reduction alterative, all future posted speeds would be 45 mph and the design speed would be 50 mph.

3. Description of Proposed Action (attach project location map and other appropriate graphics):

Under the preferred alternative, Reconditioning with Spot Safety and Geometric Improvements, 5.1 miles of WIS 164 would be resurfaced with spot safety and geometric improvements and 2.4 miles would be reconstructed to enhance safety and mobility through the corridor while minimizing impacts to the surrounding environment. Approximately 32% of the total 7.5 mile project length would be reconstructed to address the most severe design deficiencies that have contributed to the crash history in the project corridor. This falls below the acceptable maximum for reconditioning projects, which can include reconstruction for up to 50% of the total project length. See Exhibit 3 – Existing and Proposed Typical Sections and Exhibit 7 – Preliminary Plan View Layouts.

Address Pavement Condition

One inch of the existing asphaltic surface would be milled off the roadway and a four inch asphalt overlay would be constructed in the highway reconditioning segments.

A new pavement would be constructed with a 6 ¼" asphaltic surface and 12 inches of base aggregate in the highway segments where reconstruction would be required.

Address Lane Width

The two existing 11 foot wide travel lanes would be widened to 12 foot wide travel lanes in the highway reconditioning segments.

The reconstructed highway segments would consist of two 12 foot wide travel lanes.

Centerline rumble strips would be installed along WIS 164 because of their proven safety benefit on two lane rural highways. Rumble strips are an engineering treatment designed to alert drivers of a lane departure through vibration and noise created when a vehicle's tires contact the rumble strip. Centerline rumble strips would be especially helpful during bad weather such as rain, snow or fog when visibility of the centerline is substantially reduced. Centerline rumble strips also would help to reduce inattentive driving crashes. Centerline rumble strips would help to keep vehicles in their lane and reduce head-on and sideswipe crashes. This safety improvement would address the types of crashes experienced in the corridor and would be consistent with the purpose and need of the project.

Twelve foot wide lanes would be required to accommodate a centerline rumble strip. Increasing the travel lane width from 11 feet minimum to a desirable 12 foot width would allow the installation of centerline rumble strips, which is not possible with 11 foot wide travel lanes. The minimum lane width for including a centerline rumble strip is 12 feet per

FDM 11-15-1.5.1.2.1. Twelve (12) foot wide travel lanes are also desirable because WIS 164 is a state designated Long Truck Route and on the National Highway System per FDM 11-40 Attachment 1.2, Design Class 3RA3 and footnote 1. Average truck volumes are 8.4% on WIS 164, which is just below the 10% criteria that would also require two 12 foot lanes as a minimum. Twelve foot wide lanes are also desirable because they would provide the added safety benefit of desirable lateral clearance between vehicles, particularly large commercial vehicles, traveling in opposite directions. Twelve foot wide travel lanes would provide an added safety benefit, and would better meet the operational needs for a state designated long truck route that regularly carries oversize overweight loads. The 12 foot lane width would have safety and operational benefits consistent with the purpose and need for this project.

Address Shoulder Width

The existing 8 foot wide shoulders would typically be widened to 10 feet in the 5.1 miles of highway reconditioning segments. The shoulder width per FDM 11-40-1.6.1 should be the greater of either existing or as provided on FDM 11-40 Attachment 1.2. This table shows a 6 foot width for Design Class 3RA3, but the existing shoulder width is 8 feet; therefore, the minimum shoulder width is 8 feet. Although 3R standards would allow a minimum shoulder width of 8 feet, the application of minimum shoulder width standards is typically reserved for projects where no other grading or real estate acquisition would be anticipated, or for projects where there is a low crash rate. A 10 foot typical shoulder width is recommended to match the both the reconstruction highway segment shoulder width and the 10 foot wide shoulder on WIS 164 north and south of the project limits for a consistent width within the project corridor. See below for further discussion of the benefits of the desirable width, and exceptions considered.

The 2.4 miles of reconstructed highway segments would include two 10 foot wide shoulders. The shoulder width per FDM 11-15 Attachment 1.1 for a rural state trunk highway Design Class A2 would be 10 feet desirable and 8 feet minimum. Desirable standards are recommended for all reconstruction segments unless there are specific resource impacts identified. See below for further discussion of the benefits of the desirable width, and exceptions considered.

Edge line rumble strips would be installed on the shoulders of WIS 164 because of their proven safety benefit on two lane rural highways. Edge line rumble strips would be especially helpful during bad weather such as rain, snow or fog when visibility of the edge line is substantially reduced. Rumble strips also help to reduce inattentive driving crashes. Edge line rumble strips would help to reduce fatal and injury Run-Off-Road (ROR) crashes by alerting inattentive drivers to lane departures. Run-off-road (ROR) crashes account for over one-third of all fatal and injury crashes each year, with 90% taking place on rural Wisconsin highways. This safety improvement would address the types of crashes experienced in the corridor and would be consistent with the purpose and need of the project.

Six feet of the 10 foot wide shoulders would be paved to accommodate bicycles, but no added shoulder width, grading or right of way would be required for bicycle accommodation in the typical roadway cross section. A minimum paved shoulder width of 3 feet is required per FDM 11-15 Attachment 1.5, but FDM 11-46 Table 15.2 calls for a 5 foot wide minimum shoulder width for on-street bicycle accommodations and recommends a desirable 6 foot paved shoulder width. This added pavement width would also provide additional pavement width for oversize vehicles traveling the project corridor and allow them to straddle the rumble strips as necessary. The additional pavement width would help to address run off the road type crashes, by providing a wider paved avoidance and recovery area before leaving the roadway. The paved shoulders would also provide additional paved width for residents to enter their driveways.

Increasing the total shoulder width from 8 feet minimum to 10 feet desirable and providing a desirable paved shoulder width of 6 feet would have safety, operational, and bicycle accommodation benefits consistent with the purpose and need of this project. A consistent 10 foot shoulder width would provide these same benefits throughout the project corridor with a minimal increase in the cost and right-of way for the project since it would be done in conjunction with the construction of the lane widening and regrading of the adjacent steep side slopes in the reconditioning segments. A 10 foot shoulder width would also be consistent with the adjacent segments of WIS 164 to the north and south of the project limits.

The proposed shoulder width would be reduced from 10 feet to the minimum of 8 feet from STA 395+34 to STA 396+56, Left adjacent to the Coney River. This reduced shoulder width not only would reduce the wetland impacts, but would also eliminate the need to extend the existing drainage pipe under WIS 164. This would also eliminate the need for any in-stream work and substantial temporary wetland impacts for construction at this location. There is no crash history at this stream crossing location; therefore, a reduction to the minimum shoulder width will substantially reduce resource impacts and project cost while still meeting the purpose and need of this project. The use of the minimum shoulder width would be limited to this location to maximize the benefits of a consistent shoulder width

within the project corridor as described above. No additional locations were identified where using the minimum shoulder width would substantially decrease the environmental resource impacts.

The proposed shoulder width would be increased to 12 feet on WIS 164 from STA 245+50 to STA 249+70, LT to provide added width for large southbound farm vehicles going up the 5% profile grade just south of the WIS 167 roundabout. This plan modification resulted from additional coordination with the adjacent farm operation and the revision to use minimum rather than desirable design criteria for the vertical alignment at this location following the Public Hearing.

Address Horizontal Alignment

There are no existing substandard horizontal alignment features. The WIS 164 alignment would be shifted approximately 30 feet west at the Pleasant Hill Road intersection as discussed above in Question 2.

Address Vertical Alignment – Profile Grade

Table 10 lists the substandard vertical profile grades along the project would be eliminated with the reconstruction of the crest vertical curves that are tangent to these steep profile grades. See below in section titled "Address Vertical Alignment – Vertical Curves" for further discussion on vertical curves.

Table 10: Substandard Vertical Profile Grades that Would be Reconstructed

Begin Station	End Station	Existing Grade	Proposed Grade	Additional Information
56+10	59+95	6.68%	3.25%	Reduced grade required to meet sight distance requirements for adjacent crest vertical curve
102+50	114+45	7.93%	4.00%	Profile grade has been a factor in crashes including one fatal crash and many injury crashes at this location; winter storms often require closing and temporarily detouring WIS 164 to local roads at this location
194+05	201+55	7.97%	3.98%	Reduced grade required to meet sight distance requirements for adjacent crest vertical curve
246+55	250+90	8.00%	5.00%	Reduced grade required to meet sight distance requirements for adjacent crest vertical curve

Note: The desirable maximum profile grade is 4% in reconstruction segments that would also apply a desirable design speed of 60 mph. The maximum grade of 5% is proposed just south of the WIS 167 intersection to minimize impacts to the adjacent farming operation.

Table 11 lists the substandard vertical profile grades within the project limits that would not be improved with this project. These substandard vertical profile grades meet minimum 3R design standards. These profile grades would not be improved primarily because they have not contributed to higher than expected crash rates. Maintaining the existing vertical alignment at these locations serves to minimize project cost, resource impacts, and right of way acquisition, while still meeting the purpose and need of the project. A list of these locations is summarized in the following table.

Table 11: Substandard Vertical Profile Grades Along the WIS 164 Project That Would Remain

Begin Station	End Station	Design Speed	Existing Grade	Additional Information
259+45	265+80	50	6.77%	Reduction would require significant additional wetland impacts and right of way acquisition at the Oconomowoc River crossing. No crash history at this location.
414+65	420+35	55	5.86%	No crash history at this location
431+20	435+50	55	5.92%	No crash history at this location

Address Vertical Alignment – Vertical Curves

Five segments of WIS 164 would be reconstructed to address substandard vertical alignment characteristics and improve stopping and intersection sight distances. Those segments are summarized below in Table 12:

Table 12: WIS 164 Reconstruction Segments

Location	Primary Deficiencies to be Addressed with Full Reconstruction
WIS 164 STA 50+50 to STA 74+50 (south of Shady Lane to north of Hansen Drive/Upland Drive)	Improve stopping sight distance, improve intersection sight distance, provide turn lanes, eliminate two skewed intersections, eliminate two closely spaced intersections, reduce profile slope to 4%
WIS 164 STA 98+00 to STA 130+00 (north of Monches Road to 1,500 feet south of Elmwood Road)	Improve stopping sight distance, reduce profile slope to 4%, improve side slopes
WIS 164 STA 183+50 to STA 206+00 (south of St. Gabriel Lane to north of Hubertus Road)	Improve stopping sight distance, improve intersection sight distance, provide turn lanes, reduce profile slope to 4%
WIS 164 STA 230+50 to STA 264+50 (south of Golden Drive to north of WIS 167)	Improve stopping sight distance, improve intersection sight distance, improve decision sight distance, improve intersection traffic flow, reduce profile slope to 5%
WIS 164 STA 290+10 to STA 318+00 (1,445 feet south to 1,345 feet north of the Pleasant Hill Road Intersection)	Improve stopping sight distance, improve intersection sight distance, provide turn lanes, improve lateral clearance to adjacent buildings

These segments of the project comprise the most severe highway vertical alignment deficiencies that appear to have contributed to a higher than expected crash rates in these areas. Reconstruction of these highway segments to meet desirable design standards would address the safety concerns, highway deficiencies, and traffic flow issues at these locations, which is consistent with the purpose and need of the project.

There would be several existing substandard crest vertical curves within the project limits that would not be improved with this project. These crest vertical curves meet minimum 3R design standards for stopping sight distance, but do not meet desirable design standards. These curves would not be improved primarily because they have not contributed to higher than expected crash rates. Maintaining the existing vertical alignment at these locations serves to minimize project cost, resource impacts, and right of way acquisition, while still meeting the purpose and need of the project. A list of these locations is summarized in Table 13 below.

Table 13: WIS 164 Substandard Crest Vertical Curves to Remain

Begin STA	End STA	Type	3R Design Speed (mph)	Comments
225+50	230+00	Crest	50	Below desirable for 50 mph
417+75	424+75	Crest	55	Below minimum for 55 mph
433+00	443+00	Crest	55	Below desirable for 55 mph

The substandard crest vertical curve that would be reconstructed between STA 240+70 and STA 245+50 would meet minimum 3R design standards for stopping sight distance and decision sight distance for the approach to the proposed roundabout at the intersection of WIS 164 and WIS 167. The initial design concept in the Draft ER at this location provided a design that met desirable design standards, but as a result of written testimony provided as part of the Public Hearing it was determined that the impacts to the farming operation located adjacent to this roadway segment would be excessive. Design refinements were made that would reduce the proposed right of way impacts and would maintain the existing access to the farming operation. The proposed improvements at this location would meet minimum design standards and would remain consistent with the purpose and need of the project.

There would be several existing substandard sag vertical curves within the project limits that would not be improved with this project. These sag vertical curves meet minimum 3R design standards for stopping sight distance, but do not meet desirable design standards. These curves would not be improved primarily because there is no crash history at these locations associated with these deficiencies. Maintaining the existing vertical alignment at these locations serves to minimize project cost, resource impacts, and right of way acquisition, while still meeting the purpose and

need of the project. A list of these locations is summarized in Table 14 below.

Table 14: WIS 164 Substandard Sag Vertical Curves to Remain

Begin STA	End STA	Type	3R Design Speed (mph)	Comments
264+50	273+00	Sag	50	Meets minimum for 40 mph
411+25	416+25	Sag	55	Meets minimum for 45 mph
429+25	432+25	Sag	55	Meets minimum for 35 mph

Address Additional Deficiencies – Intersections

By-pass and right turn lanes would be constructed at intersections throughout the corridor to improve safety and traffic flow by allowing traffic to either bypass left turning vehicles or by allowing right turning traffic to pull out of through lanes. See Exhibit 7 – Preliminary Plan View Layouts for locations. An exclusive left turn lane would be provided for WIS 164 northbound left turning vehicles at the County E intersection due to the high volume of left turning vehicles at this location.

Several intersections would be reconstructed to address safety and operational concerns. At the Shady Lane/WIS 164 intersections, both Shady Lane intersections with WIS 164 would be eliminated and Shady Lane would be realigned to connect to Hansen Drive. A modern single lane roundabout would be constructed at the WIS 164 intersection with WIS 167. At the Pleasant Hill Road/WIS 164 intersection, the centerline of WIS 164 would be shifted approximately 30 feet to the west to enhance safety by providing adequate clear zones to existing buildings and vision triangles at the corners of the intersection without substantially impacting access to businesses and residents. Intersection improvements at these specific locations and the alternatives considered are discussed in greater detail above in Question 2.

These intersection improvements would address the traffic flow, existing highway deficiencies, and safety concerns at these locations, which is consistent with the purpose and need for this project.

Level of Service & Traffic Flow

The existing Level of Service (LOS) within the project limits is LOS D. With the improvements proposed as part of this action, the design year (2038) LOS within the project limits would range from LOS D to LOS E. See Basic Sheet 6 for more information on LOS by segment. WIS 164 within the limits of the proposed actions is a principal arterial that is part of the NHS and the stated acceptable level of service for NHS routes in rural and small urban areas per FDM 11-5 Table 3.1 is LOS C.

The proposed action would not improve the LOS on this section of WIS 164 to LOS C, but it would provide incremental improvements to address safety and traffic flow. Improvements that would be made to help improve safety and traffic flow as outlined in FDM 11-5-3.3 include:

- Widening travel lanes
- Widening shoulders
- Adding turn lanes at intersections
- Improving intersection sight distance
- Vertical profile improvements
- Reducing the number of access points

Additional improvements to the LOS would require more substantial improvements such as:

- The addition of passing lanes and or truck climbing lanes, which would be difficult to safely accommodate with the close intersection spacing in the project corridor
- Additional flattening of hills to substantially increase the percentage of safe passing zones within the project corridor
- Capacity expansion by adding through travel lanes

The social, economic, and environmental impacts associated with the proposed improvements to achieve a LOS C or better with this project would be substantial, and would not be considered reasonable for the scope of this reconditioning project. A LOS E or better has been determined to be acceptable for this project.

Traffic flow in the WIS 164 corridor would be improved with the proposed action. Each of the proposed improvements that would be made to help improve the predicted LOS as noted above would also improve the average travel speeds and reduce delay during peak travel periods. The single lane modern roundabout proposed for the WIS 164 intersection with WIS 167 would improve the predicted intersection LOS for the design year with the existing geometrics from LOS F for the highest volume movements with an average delay of more than 2 minutes per vehicle in the peak hour to a LOS A with an average delay of less than 10 seconds per vehicle in the peak hour. The addition of turn lanes and bypass lanes at the other intersections in the corridor would also help to improve traffic flow by allowing through traffic to proceed past left or right turning vehicles with minimal delay. These improvements would address the existing and future traffic demand at an acceptable level, and would improve traffic flow consistent with the purpose and need of the project.

Address Additional Deficiencies – Roadside Safety

Ditches and side slopes throughout the corridor would be regraded to meet current clear zone and traversability standards and to improve drainage issues at spot locations.

Clear zone is defined as that roadside border area which is made available for safe use by errant vehicles. It starts at the edge of the traveled way and consists of the shoulder, auxiliary lanes, a recoverable slope, and any traversable but non-recoverable slope with a clear run-out area at the bottom of the slope. The clear zone should be clear of all fixed objects such as utility poles, and non-traversable features such as large culvert pipe ends or steep slopes.

A desirable clear zone width of 30 feet would typically be provided. A minimum clear zone width of 18 feet would be provided where a reduced width would result in reduced impacts to adjacent environmental resources such as wetlands. A minimum clear zone width of 18 feet would also be provided adjacent to the farm operation south of WIS 167 to reduce farmland impacts. Within the clear zone the existing steep, non-traversable slopes and ditches located throughout the project corridor would be flattened. Providing a wider clear zone would greatly reduce the potential for rollover and injury crashes that are currently experienced at a higher than average rate within the corridor. In locations where a safe clear zone cannot be achieved, the guardrail adjacent to the highway shoulder would be upgraded to meet current safety standards. Buildings within the clear zone would be removed, and WIS 164 would be shifted away from buildings that would remain at the Pleasant Hill Road intersection. Other enhancements would include moving above ground utilities outside the clear zone, extending cross culvert pipes beyond the clear zone or providing traversable pipe ends if within the clear zone, and providing traversable driveway slopes within the clear zone.

These roadside improvements would provide a substantial safety improvement throughout the project corridor by reducing the potential for and severity of runoff the road crashes consistent with the purpose and need for this project.

Design Exceptions

No design exceptions would be required with the project. A design exception is required when minimum standards for one of the thirteen controlling criteria defined in FDM 11-1 Table 2.1 are not met. The areas with deficiencies less than the minimum standards for 3R projects would be improved. The areas with the most substantial crash history would be improved to meet desirable design standards. Other areas would be improved to meet or exceed minimum design standards, but would not be improved to desirable design standards to help minimize the project impacts to adjacent resources, right of way acquisition, or project cost, while still meeting the purpose and need of the project.

Posted Speed Limit

No changes to the posted speed limits in the corridor are anticipated as part of this project, except for the existing 40 mph posted speed limit on WIS 164 adjacent to the Pleasant Hill Road intersection, which would be changed to either 50 or 55 mph. An increase in the posted speed to match the adjacent speed zones would be warranted and more consistent with driver's expectations. This increase in posted speed would be possible due to the proposed improvements to the horizontal and vertical alignment, which would provide improved intersection sight distance, stopping sight distance, turn lanes, and horizontal clearance to the adjacent buildings. The final posted speed determination at this location would be made during final design.

National Environmental Protection Act (NEPA) Limits Description

The WIS 164 reference line is located at the approximate center of the roadway and is the line from which the NEPA limits east and west are measured. Table 15 below describes the NEPA limits of the project for WIS 164 and the side roads. Values are rounded to the nearest five feet.

WIS 164 Mainline limits are measured from the WIS 164 reference line. These limits include the roadway, terrace or ditch area, side slopes, permanent right of way and temporary right of way. Temporary right of way would be used during construction to blend slopes and to reconstruct driveways to match the adjusted roadway elevation.

The NEPA limit also describes the distance that the "footprint" of the project extends between the north and south project limits. The south project limit on WIS 164, approximately 1,100 feet north of County Q, matches the northerly project limit of the previous project that reconstructed the County Q intersection with WIS 164. The north project limit on WIS 164, approximately 3,300 feet north of County E, matches the southerly project limit of the previous project that reconstructed the WIS 175 intersection with WIS 164.

Side road limits are measured east and west of the WIS 164 reference line. These NEPA Limits are also represented graphically on the NEPA Limits exhibits in the Environmental Addendum A, Attachment 6.

Table 15: NEPA Limits Table

Roadway Feature	NEPA Limit	Description
WIS 164 Mainline	Varies	The NEPA limits vary throughout the corridor depending on the width of the grading that would be needed during construction to match into the existing terrain. The NEPA limits range from 35 feet to 235 feet west of the WIS 164 reference line, and range from 45 feet to 250 feet east of the WIS 164 reference line.
Shady Lane	Varies	Shady Lane would be realigned to intersect with Hansen Drive. The NEPA limits range from 30' to 105' left of the Shady Lane reference line.
Hansen Drive	150 feet west	Minor side road construction of curb radii and pavement tapers.
Upland Drive	150 feet east	Minor side road construction of curb radii and pavement tapers.
Monches Road	170 feet west 170 feet east	Minor side road construction of curb radii and pavement tapers.
Wooded Hills Church Drive	145 feet west	Minor side road construction of curb radii and pavement tapers.
Elmwood Road	170 feet west 170 feet east	Minor side road construction of curb radii and pavement tapers.
Tuckaway Lane	160 feet west	Minor side road construction of curb radii and pavement tapers.
Cherokee Trail	155 feet east	Minor side road construction of curb radii and pavement tapers.
St. Gabriel Lane	325 feet east	WIS 164 would be lowered at the intersection. The 325 foot reconstruction length would be needed to tie the vertical profile of St Gabriel Lane into the existing roadway profile.
Hubertus Road	670 feet west 800 feet east	WIS 164 would be lowered at the intersection. The reconstruction length would be needed to tie the vertical profile of Hubertus Road into the existing profile.
Golden Drive	300 feet east	WIS 164 would be lowered at the intersection. The 300 foot reconstruction length is needed to tie the vertical profile of Golden Drive into the existing roadway profile.
Lochview Drive	150 feet west	WIS 164 would be raised at the intersection. The 150 foot reconstruction length would be needed to tie the vertical profile of Lochview Drive into the existing roadway profile.
Ada'Hi Court	245 feet west	WIS 164 would be lowered at the intersection. The 245 foot reconstruction length would be needed to tie the vertical profile of Ada'Hi Court into the existing roadway profile.
WIS 167 (Holy Hill Road)	1,125 feet west 1,125 feet east	A single lane modern roundabout is proposed at the WIS 164/WIS 167 intersection. The 1,125 feet of reconstruction would be needed in order to construct the roundabout approaches on WIS 167.
Greystone Drive	150 feet west	Minor side road construction of curb radii and pavement tapers.
Pleasant Hill Road	295 feet west 40 feet east	WIS 164 would be lowered at the intersection. The 295 foot reconstruction length on the west side of WIS 164 would be needed to tie the vertical profile of Pleasant Hill Road into the existing roadway profile. The 40 foot reconstruction of Pleasant Hill Road on the east side of WIS 164 would be for minor side road construction of curb radii.

Table 15: NEPA Limits Table (cont.)

Roadway Feature	NEPA Limit	Description
Majestic Drive	150 feet west	Minor side road construction of curb radii and pavement tapers.
Pioneer Road	165 feet west 165 feet east	Minor side road construction of curb radii and pavement tapers.
County E	505 feet west	The 505 foot reconstruction would be needed to tie the vertical profile of County E into the existing roadway profile.
Club Drive	145 feet east	Minor side road construction of curb radii and pavement tapers.

Traffic During Construction

WIS 164 would be closed to through traffic during construction in stages with a posted detour. Access would be maintained to local residences and businesses and for emergency vehicles during construction. The first stage would include construction of the roundabout at the WIS 167/WIS 164 intersection and construction of WIS 164 south of WIS 167. The second stage would include construction on WIS 164 north of WIS 167.

Right of Way Acquisition

Right of way acquisition would be anticipated throughout the WIS 164 project corridor to accommodate the intersection and geometric improvements that would address safety and operational issues; regrading of ditches along nearly the entire corridor to improve drainage, reduce steep side slopes, and address ditch traversability issues; and increased storm water management requirements including right of way for ditches with flatter side slopes, flat bottom ditches, and permanent ditch checks. Right of way acquisition would be required to meet the purpose and need for this project. The types of proposed improvements that would require additional right of way are typical for this level of highway improvement.

Real estate required for the WIS 164 project are summarized in Table 16 below.

Table 16: Real Estate Required

Right of Way Interest	Area (Acres)	Purpose
Fee Acquisition	37.8	Permanent highway right of way
Temporary Limited Easement (TLE)	11.7	Temporary grading easement
Permanent Limited Easement (PLE)	0.07	Drainage structures or ditch maintenance outside the right of way

The real estate that would be required for the WIS 164 improvements is summarized in Table 17 below.

Table 17: Real Estate Required by Roadway Improvement Type

Proposed Improvements	Purpose and Need of the Proposed Improvements	Fee Right of Way Required (Acres)	TLE Required (Acres)	PLE Required (Acres)
Reconstruct WIS 164 on new vertical alignment at the existing Shady Lane intersections	Improve substandard vertical geometrics, sight distance and safety	1.4	0.5	0.01
Realign Shady Lane to intersect Hansen Drive rather than WIS 164	Eliminate the substandard Shady Lane intersections with WIS 164, and improve corridor safety	0.4	0.3	0.01
Reconstruct WIS 164 at the Monches Road intersection on new vertical alignment	Reduce the steep substandard profile grade and improve corridor safety	6.3	1.5	0.00
Reconstruct WIS 164 at the Hubertus Road intersection on new vertical alignment	Reduce the steep substandard profile slope, improve substandard sight distances, improve corridor safety and traffic flow	2.9	1.2	0.02
Reconstruct the WIS 164 intersection at WIS 167 on new vertical alignment and as a modern single lane roundabout	Reduce the steep substandard profile slope, improve substandard sight distance, improve intersection safety and traffic flow	4.7	1.7	0.01
Reconstruct WIS 164 at the Pleasant Hill Road intersection on new horizontal alignment	Improve substandard intersection sight distance, clear zones, safety and traffic flow	2.5	1.0	0.00
Re-grade the WIS 164 side slopes and ditches with spot safety improvements at intersections	Improve lane width, shoulder width, corridor side slopes, clear zones, safety and traffic flow	19.6	5.5	0.02
	Totals	**37.8**	**11.7**	**0.07**

Eliminating any one of the spot improvements listed above would not eliminate all of the right of way acquisition estimated for that segment of the project. A portion of the additional right of way estimated for each spot improvement would still be required to address the standard improvements of added lane width, added shoulder width and traversable ditch slopes. The 37.8 acres of right of way acquisition along the corridor would generally be required to address added lane width, added shoulder width and traversable ditch slopes to meet current design standards.

WisDOT has identified PLE as the appropriate real estate interest for the installation and maintenance of riprap used for erosion control at the discharge ends of culvert pipes shown at the following locations: STA 24+50 left (Shady Lane), STA 185+50 to STA 185+70 left, STA 203+35 to STA 203+60 left, STA 212+30 to STA 212+60 left, STA 238+35 to STA 238+75 left, STA 372+90 to STA 373+10 right. This approach is consistent with guidance in FDM 12-1-15.3, and compensation would be made to parcel owners for acquisition of these PLE areas.

Right of way acquisition was minimized throughout the project corridor with the proposed design for the recommended alternative. The numerous locations where minimum rather than desirable design criteria would be implemented or would remain are described above. Curb and gutter would be placed along the outside edge of shoulder in locations where this approach would reduce right of way acquisition and substantial property impacts by eliminating the need for a ditch. A storm water detention pond was proposed in the Draft ER in the northwest quadrant of the WIS 164 intersection with WIS 167, but this pond has been removed from the preferred alternative at the request of the adjacent property owner. A revised ditch and storm sewer design would meet minimum drainage requirements without the pond thus reducing the right of way required. Offsets from the slope intercept to the proposed right of way line would be kept close to the minimum of 5 feet to allow room for slope rounding and utility accommodation rather than the desirable 10 foot offset. Efforts to reduce the required right of way acquisition area were carefully balanced against the proposed acquisition of the right of way needed to achieve the purpose and need of the project.

Further reductions in fee right-of-way acquisition would require more extensive use of minimum design standards or obtaining design exceptions for the preferred alternative. Desirable design standards were used at locations where there was a documented crash history, or for highway features that have been documented to contribute to the higher than average crash history in the project corridor. Minimum design standards were used where there was no documented crash history at a particular location, or no documented crash history related to a particular highway feature. Minimum design criteria were also used where desirable standards would have resulted in substantially greater impacts to the adjacent properties or environmental resources. No locations within the corridor were identified where a practical design exception would have substantially reduced impacts; therefore, no design exceptions are proposed with this project. Further reductions in the design criteria and associated right-of-way acquisition required for the preferred alternative would not be consistent with the purpose and need for this project.

The total fee right of way acquisition required by this project (37.8 acres) would be similar to the amount of fee right of way estimated for a 4-lane expansion alternative studied in 2001. See Exhibit S-1, County J/WIS 164 Final Environmental Impact Statement (Final EIS), Project ID 2748-01-01 (December 11, 2001). Copies of this document can be obtained from WisDOT. The County J/WIS 164 Final EIS estimated fee right of way acquisition for the length of road considered under the current study at approximately 46.6 to 51.7 acres, from Bark River (just south of County Q, this project's southern terminus) to County E.

The real estate requirements of the County J/WIS 164 Final EIS recommended alternative were largely based on two factors: (1) an assumption of a 160-foot right of way width for much of the corridor, see Exhibit 2-2, County J/WIS 164 Final EIS; and (2) the identification of several critical areas where design indicated more right of way width could be expected.

The critical areas where wider right of way widths could be expected under the County J/WIS 164 Final EIS were due to large cuts, fills, or intersection improvements meant to address geometric deficiencies such as slope and sight distance. This project addresses some of the same geometric deficiencies. In order to address these geometric deficiencies, even for the currently studied two-lane highway, right of way would be required at several intersections, as well as on hills for cut or fill slopes, as identified in the table above.

The 160-foot wide corridor assumed by the County J/WIS 164 Final EIS met minimum clear zone requirements for a four-lane highway, but it did not address detailed design issues, and would not meet current design standards. For instance, had current storm water runoff controls applied to the previous project, more right of way acquisition would have been required for ponds, flat bottom ditches, and other runoff control strategies. If a similar four-lane expansion project were proposed today, more fee right of way would be required than the 46.6 to 51.7 acres that were estimated with the County J/WIS 164 Final EIS. Substantially more right of way would be required for a capacity expansion alternative than the 37.8 acres of fee right-of-way acquisition that is estimated for the preferred alternative.

The preferred alternative would not acquire any right of way in anticipation of a potential future capacity expansion project, or any other potential future improvements within the corridor. The preferred alternative is designed to meet the stated purpose and need within the 20 year design life of the current project. Conditions are met to allow for consideration of capacity expansion, but WisDOT has decided not to pursue capacity expansion at this time. A proposed capacity expansion of WIS 164 would only be pursued in the future if traffic volumes warranted that expansion be evaluated and if funding would be available. A new environmental document would need to be prepared and approved as part of the development of any future project.

4. In general terms, briefly discuss the construction and operational energy requirements and conservation potential of the various alternatives under consideration. Indicate whether the savings in operational energy are greater than the energy required to construct the facility:

Energy consumption related to roadway construction includes energy required by raw materials and equipment to build and maintain the roadway. Operational energy is the direct consumption of fuel by vehicles using the roadway. Fuel usage is affected by vehicle type, roadway grade, speed, and congestion. The no-build alternative requires no construction energy except for periodic roadway maintenance, which would become more frequent in the future. Operation energy would remain high. Because the preferred alternative requires construction activity, more construction energy is used for excavation, filling, hauling, and pavement construction and material manufacturing than the no-build alternative. However, the operation energy required would decrease over time. The initial construction energy costs for the preferred alternative would be recovered over time due to long-term savings in

operational energy costs and reduced future maintenance energy costs.

5. Describe existing land use (attach land use maps, if available):

a. Land use of properties that adjoin the project:

The land adjacent to the project corridor is primarily a mix of agricultural and single family residential land uses. There is limited commercial development including two bars/restaurants adjacent to WIS 164. Two churches, a school, a fire station, and a cemetery are also located adjacent to the corridor. Some open space, wetland, and woodland areas are adjacent to the project. See Exhibit 8 – Village of Richfield and Town of Polk Land Use Plans.

b. Land use surrounding project area:

The land use surrounding the project area mirrors the land use adjacent to the project corridor and is mainly a mix of agricultural and residential land uses with interspersed commercial, institutional, and undeveloped areas.

6. **Briefly identify adopted local or regional plans for the project area and zoning regulations. Discuss whether the proposed action is compatible with the plan or zoning:**

The proposed action is in conformity with the current and future land use plans for the Village of Richfield and Town of Polk in Washington County. The proposed WIS 164 project is in conformity with the Southeastern Wisconsin Regional Planning Commission's (SEWRPC's) Regional Transportation Plan for Southeastern Wisconsin: 2035. The proposed action is identified as No. 261 (Resurfacing of WIS 164 from County Q to WIS 60 in Washington County) in SEWRPC's Transportation Improvement Program for Southeastern Wisconsin: 2013-2016 (TIP). The proposed action has no effect on the expected type of development or land use in the immediate area. It does not prohibit or promote one type of land use over another.

7. Describe how the project development process complied with Executive Order 12898 on Environmental Justice. If populations of any group covered by EO 12898 are present in the project area, complete Factor Sheet B-4, Environmental Justice:

Table 18: Environmental Justice Compliance

How was information obtained about the presence of populations covered by EO 12898?	
☒ Windshield Survey	☐ Official Plan
☒ US Census Data	☐ Survey Questionnaire
☐ Real Estate Company	☐ WisDOT Real Estate
☒ Public Information Meeting	☐ Local Government
☐ Human Resources Agency Identify agency Identify plan, approval authority and date of approval	
☐ Other (Identify)	

a. ☒ No - Populations covered by EO 12898 are not present in project area.
b. ☐ Yes - Populations covered by EO 12898 are present. Factor Sheet B-4 must be completed.

8. **Indicate whether individuals covered by Title VI of the 1964 Civil Rights Act, the Americans with Disabilities Act or the Age Discrimination Act were identified:** *Title VI prohibits discrimination on the basis of race, color, or country of origin.*
a. ☒ No - Individuals covered by the above laws were not identified.
b. ☐ Yes - Individuals covered by the above laws were identified.
☐ Civil Rights issues were not identified.
☐ Civil Rights issues were identified. Explain:

9. Briefly summarize public involvement methods:

a. Meetings.

Table 19: Summary of Public Meetings

Date	Meeting Sponsor (WisDOT, RPC, MPO, etc.)	Type of Meeting (PIM, Public Hearings, etc.)	Location	Approx. # Attendees
6/7/2011	WisDOT	PIM	Richfield Village Hall	100
2/9/2012	WisDOT	PIM	Richfield Village Hall	180
2/14/2013	WisDOT	PIM	Friess Lake School	100
2/23/2014	WisDOT	Public Hearing	Friess Lake School	130

b. Other methods, describe:

N/A

***c.* Identify groups that participated in the public involvement process. Include any organizations and special interest groups:**

The Highway J Citizens Group, U.A., has participated in the public hearing, both public information meetings and has submitted prepared comments and information to WisDOT.

The Waukesha County Environmental Action League (WEAL) has submitted prepared comments to WisDOT.

See Exhibit 9 for Highway J Citizens Group, U.A and Waukesha County Environmental Action League correspondence.

d. Indicate plans for additional public involvement, if applicable:

One additional public information meeting is planned to be held. The purpose of the additional public information meeting will be to inform the public of the proposed staging concepts just prior to construction.

10. Briefly summarize the results of public involvement:

a. Describe the issues, if any, identified by individuals or groups during the public involvement process:

Several key issues were raised by attendees at the first public information meeting:

- Safety concerns at intersections and driveways with crest vertical curve sight distance constraints and areas with steep grades and blowing snow.
- Comments were received to cut down the hills near Hubertus Road and north of Monches Road.
- Concerns about delays at the WIS 167/WIS 164 intersection.
- Comments were received that turn lanes and bypass lanes should be added at intersections throughout the corridor and that turning radii should be increased.
- Requests were made to reduce the speed limit to 40 or 45 mph throughout the corridor. Some attendees believed that current travel speeds are too fast.
- A request was made for better snowmobile accommodation in the project corridor.
- Some attendees were in favor of not doing any work on WIS 164. They felt there was not funding available to do the work and that the project will ruin the rural character of the corridor.
- There was both support and opposition for roundabouts. Many attendees like the roundabout at the County Q/WIS 164 intersection, but many don't like it even though it dramatically improved the traffic back-ups.
- Several attendees noted localized drainage issues.

Several key issues were raised by attendees at the second public information meeting:

- More support than opposition was noted for the roundabout alternative at the WIS 167/WIS 164 intersection.
- There was general support for cutting of hills to improve sight distance and reduce longitudinal grades.
- Some attendees noted that nothing needs to be done except to reduce the speed limit to 45 mph.
- Some attendees would like to preserve the rural character of the corridor.
- There was a request for consistent speed limits through the project limits. The existing posted speed goes from 55 mph to 50 mph to 40 mph to 55 mph. They noted that this is confusing and difficult to enforce.
- Some attendees would like to see WIS 164 expanded to 4 lanes now.
- Several attendees noted localized drainage issues.

Several key issues were raised by attendees at the third public information meeting:

- There was general support for the roundabout alternative at the WIS 167/WIS 164 intersection.
- There was general support for cutting of hills to improve sight distance and reduce longitudinal grades.
- There was general support for the proposed improvements at the WIS 164/Pleasant Hill Road intersection.
- There was general support for the proposed realignment of Shady Lane to intersect at Hanson Drive and removal of the two Shady Lane intersections with WIS 164.
- Some attendees noted that nothing needs to be done except to reduce the speed limit to 45 mph.
- There was a request for consistent speed limits through the project limits. The existing posted speed goes from 55 mph to 50 mph to 40 mph to 55 mph. They noted that this is confusing and difficult to enforce.
- Several attendees noted localized drainage issues.
- Many attendees were interested in specific impacts to their property including right of way acquisition areas and timing, and impacts to driveways and trees

Additionally, some members of the public, as well as the Highway J Citizens Group, U.A and Waukesha County Environmental Action League, have indicated concerns that the proposed WIS 164 recondition project is virtually identical to the corridor preservation portion of the previously litigated WIS 164 Record of Decision (ROD) approved in 2002. See Exhibit 9 for correspondence from the Highway J Citizens Group, U.A and Waukesha County Environmental Action League.

Refer to Environmental Addendum A for additional information related to the Public Hearing.

b. Briefly describe how the issues identified above were addressed:

- Safety concerns regarding steep hills and sight distance concerns would be addressed by reconstructing deficient roadway segments that have crash or near-miss problems.
- Concerns regarding the WIS 167/WIS 164 intersection would be addressed by reconstructing the intersection as a roundabout with the capacity for the existing and projected traffic volumes.
- The suggested speed limit reduction alternative was considered with the review of FHWA and UW Tops Lab studies regarding speed limit reduction effectiveness. It was concluded that lowering speed limits within this corridor and similar highway corridors has very limited effect on the observed travel speeds. The most deficient geometric elements in the corridor that have had a substantial crash history would be eliminated by making spot safety and geometric improvements.
- Concerns about maintaining the rural character of the roadway would be addressed with the proposed design. Providing no geometric improvements to the roadway would not address the project's purpose or need. The proposed design would maintain a rural cross section except where curb and gutter would substantially reduce impacts. The proposed design would minimize impacts to the adjacent resources to the extent practical while addressing the project's purpose and need.
- Snowmobiles would be better accommodated in the project corridor with the proposed design that includes flattening the ditch foreslopes and back slopes along WIS 164, particularly at driveways, which was an area of particular concern expressed by snowmobile club representatives.
- Localized drainage issues would be addressed with the proposed ditch and culvert design.
- WIS 164 will not be evaluated for expansion to 4-lanes until traffic volumes warrant that capacity be addressed.

- Specific impacts to properties were explained and discussed with individual attendees and the real estate process for compensation to impacts to private property was explained to them
- Response letters were sent to the Highway J Citizens Group, U.A and Waukesha County Environmental Action League, noting that no expansion or "interim" expansion is proposed as part of this project. This concern is also addressed in Basic Sheet 2 of this document. See Exhibit 9 for correspondence from the Highway J Citizens Group, U.A and Waukesha County Environmental Action League.
- Also refer to Environmental Addendum A, which summarizes further plan refinements made as a result of comments received at the public hearing.

11. Local/regional government coordination:

a. Identify units of government contacted and provide the date coordination was initiated:

Table 20: Local Government Coordination Summary

Unit of Government	Coordination	Coordination Initiation Date	Coordination Completion Date	Comments
MPO, RPC, City, County, Village, Town, etc.	Correspondence Attached Y/N			
Village of Richfield	N	10/27/2010	Ongoing	See below.
Town of Polk	N	10/27/2010	Ongoing	See below.
Washington County	N	10/27/2010	Ongoing	See below.

b. Describe the issues, if any, identified by units of government during the public involvement process:

The Village of Richfield noted that there are long back-ups on WIS 164 from WIS 167 to Hubertus Road.

Village officials also are concerned about the varying speed limits within the project corridor and would prefer more consistency.

Washington County was also interested in the possibility of lowering the speed limit.

c. Briefly describe how the issues identified above were addressed:

An intersection evaluation was conducted for the WIS 167/WIS 164 intersection to analyze operations and determine if the intersection should remain a 4-way stop control, be signalized, or if a roundabout should be constructed.

Speed limit concerns were addressed through discussion of the design team being tasked with designing to driver expectations and designing within the speed limits set by the Department of Transportation.

d. Indicate any unresolved issues or ongoing discussion:

None

Basic Sheet 3

Coordination

INTERNAL WisDOT	**Coordination Required?**	**Correspondence Attached? Y = Yes N = No**	**Comments** Explain or give results. If no correspondence is attached to this document, indicate when coordination with the agency was initiated and, if available, when coordination was completed. If coordination is not required, state why.
Bureau of Aeronautics	☒ No	Y	Coordination is not required. Project is not located within 2 miles (3.22 km) of a public or military use airport nor would the project change the horizontal or vertical alignment of a transportation facility located within 4 miles (6.44 km) of a public use or military airport. See Exhibit 10 – Bureau of Aeronautics Correspondence
	☐ Yes		Coordination has been completed and no effects to the private use airports are anticipated
Bureau of Rails & Harbors	☒ No		Coordination is not required because no railways or harbors are in or planned in the project area.
	☐ Yes		Coordination has been completed and project effects have been addressed. Explain:
Regional Real Estate Section	☐ No		Coordination is not required because no inhabited houses or active businesses would be acquired.
	☒ Yes	N	Coordination has been completed. Project effects and relocation assistance have been addressed. See the Conceptual Stage Relocation Plan attached as Exhibit 11.
STATE AGENCY	**Coordination Required? Y = Yes N = No**	**Correspondence Attached? Y = Yes N = No**	
Agriculture (DATCP)	Y	Y	An initial coordination letter and Farmland Conversion Impact Rating form were sent to DATCP on October 30, 2012. An updated Agricultural Impact Notice was sent on November 30, 2012. An Agricultural Impact Statement is not required per DATCP's response on 12/3/2012. See Exhibit 12, Department of Agriculture, Trade & Consumer Protection Correspondence, U.S. Department of Agriculture Farmland Conversion Impact Rating Sheet, and Agricultural Impact Notice.
Natural Resources (WDNR)	Y	Y	See attached initial review letter dated January 2, 2012 (Exhibit 13).
State Historic Preservation Office (SHPO)	Y	Y	The Section 106 Review form was approved by WisDOT's Environmental Services Section (ESS), on February 20, 2013 and by SHPO on March 13, 2013. See Exhibit 14.
Others:	N/A	N/A	N/A

FEDERAL AGENCY	Coordination Required? Y = Yes N = No	Correspondence Attached? Y = Yes N = No	
Advisory Council on Hist.Pres. (ACHP)	N	N	Coordination is not required because the project does not adversely impact any historic resources.
Corps of Engineers (COE)	Y	N	An initial coordination letter was sent to the COE on April 26, 2012. See Exhibit 15. A copy of the wetland delineation report was sent to the COE on September 26, 2012. Coordination is ongoing and a permit application for wetland filling will be completed in consultation with WisDOT and the DNR.
Environmental Protection Agency (EPA)	N	N	Coordination is not required due to the relatively simple nature of the project and there are no impacts to sensitive environmental resources
National Park Service (NPS)	N	N	Coordination is not required because the project does not adversely impact any federally funded park land.
Nat. Resource Cons. Service (NRCS)	N	N	The Farmland Conversion Impact Rating (Form AD-1006) for WIS 164 is below 60 total points in Part VI. Per FDM 5-5-5 no coordination with the NRCS is required. (See Exhibit 12, Department of Agriculture, Trade & Consumer Protection Correspondence and U.S. Department of Agriculture Farmland Conversion Impact Rating Sheet).
US Coast Guard (USCG)	N	N	Coordination is not required because the project does not impact coastal or Great Lakes waters.
Fish & Wildlife Serv. (FWS)	Y	Y	An initial coordination letter was sent to FWS on April 26, 2012. The FWS response is attached. See Exhibit 16.
Other(Identify)	N/A	N/A	N/A
AMERICAN INDIAN TRIBES	Y	Y	Letters were sent in April 26, 2012 to the American Indian Tribes for Washington County. No issues. See Exhibit 17, Native American Tribes Correspondence.

Basic Sheet 4
Environmental Factors Matrix

FACTORS	EFFECTS				
	Adverse	Benefit	None Identified	Factor Sheet Attached	Note: Comments should be of a summary nature and should not extensively duplicate information contained in an attached factor sheet. If an "adverse" effect is permanent, a factor sheet must be attached. If an "adverse" effect is temporary, it must be explained on this sheet under "comments". If "None Identified" is indicated, explain why. **Comments**
A. ECONOMIC FACTORS					
A-1 General Economics	☒	☒	☐	☒	While there may be temporary disruption during construction, no effects on general economics are anticipated.
A-2 Business	☒	☒	☐	☒	The area's businesses may benefit from the proposed action as a safer facility may encourage more travel. Short-term inconveniences in access would occur during construction.
A-3 Agriculture	☒	☐	☐	☒	Strip fee right of way acquisition would reduce amount of farming acreage.
B. SOCIAL/CULTURAL FACTORS					
B-1 Community or Residential	☒	☒	☐	☒	Under the proposed action, WIS 164 would be closed to through traffic during staged construction with a posted detour. This would result in short-term, adverse effects to nearby residences and businesses. After construction, road users would benefit from a safer, more efficient facility. Two residences would be relocated as a result of safety improvements to the intersection of WIS 164 and Pleasant Hill Road. One residence would be relocated as a result of improvements to the WIS 164/WIS 167 intersection
B-2 Indirect Effects	☐	☐	☒	☐	Through screening analysis using "WisDOT's Pre-Screening Worksheet for EA and ER Projects For Determining the Need to Conduct a Detailed Indirect Effects Analysis" (Addendum A, Attachment 5) and FDM guidance on indirect effects, it is concluded that the factors of the project, its location, and other conditions do not warrant further detailed analysis of the potential for indirect effects. The project would not have the likelihood to result in significant indirect effects as defined by NEPA. This conclusion was based on the evaluation of 10 pre-screening factors including project design concepts and scope; project purpose and need; project type; facility function (current and planned); project location; improved travel times to an area; local land use and planning considerations; population and demographic considerations; rate of urbanization; and public/agency concerns. The data and evaluation supporting this conclusion are attached. Therefore, further evaluation of indirect effects in a detailed analysis is not warranted.
B-3 Cumulative Effects	☐	☐	☒	☐	Cumulative effect analysis is done when significant indirect and/or direct effects are identified. There are no significant indirect or direct effects; therefore, no cumulative effects analysis is needed.

B-4 Environmental Justice	☐	☐	☒	☐	Review of US Census Data and Windshield Survey along the project reveals no environmental justice concerns. No concerns for environmental justice have been expressed through three Public Informational Meetings.
B-5 Historic Resources	☐	☐	☒	☐	No properties affected. The Section 106 Review form was approved by WisDOT's Environmental Services Section (ESS), on February 20, 2013 and by SHPO on March 13, 2013. See Exhibit 14.
B-6 Archaeological Sites	☐	☐	☒	☐	No properties affected. The Section 106 Review form was approved by WisDOT's Environmental Services Section (ESS) on February 20, 2013 and by SHPO on March 13, 2013. See Exhibit 14.
B-7 Tribal Issues	☐	☐	☒	☐	No tribal units have expressed concerns with this project.
B-8 Section 4(f) and 6(f) or Other Unique Areas	☐	☐	☒	☒	Heritage Trails County Park is located adjacent to WIS 164 approximately 3,300 feet north of County E. Richfield Historical Park and Nature Park is locate on the east side of WIS 164 south of Pleasant Hill Road. No fee acquisition or permanent limited easements would be required from either park. Temporary limited easements are required at both parks. Concurrence with the temporary impacts has been provided by the Village of Richfield and the Washington County Planning and Parks Department. See Exhibit 18.
B-9 Aesthetics	☒	☒	☐	☒	There would be temporary adverse visual effects from equipment and material stockpiles during construction. The proposed action would create an updated and clean appearance to the project corridor after construction.
C. NATURAL SYSTEM FACTORS					
C-1 Wetlands	☒	☐	☐	☒	Wetland areas would be disturbed by grading for roadbed widening, intersection improvements, ditch grading, and culvert replacements and extensions.
C-2 Rivers, Streams and Floodplains	☒	☐	☐	☒	Two rivers, the Oconomowoc River and the Coney River, cross the proposed project. Existing pipe culverts located at these stream crossings would remain in place and shielded with beam guard. No in-stream work is anticipated.
C-3 Lakes or Other Open Water	☐	☐	☒	☐	There are no lakes or other areas of open water located adjacent to the project corridor.
C-4 Groundwater, Wells, and Springs	☐	☐	☒	☐	There are no known wells or springs and no expected impacts to the groundwater.
C-5 Upland Wildlife and Habitat	☐	☐	☒	☐	No Upland Wildlife and Habitat within project corridor.
C-6 Coastal Zones	☐	☐	☒	☐	The project is not located along or near a Coastal or Great Lakes water.
C-7Threatened and Endangered Species	☐	☐	☒	☒	Impacts to Threatened and Endangered Species are not anticipated.

D. PHYSICAL FACTORS					
D-1 Air Quality	☐	☐	☒	☐	This project is listed in SEWRPC's "A Transportation Improvement Program for Southeastern Wisconsin: 2013-2016" as Project 261. This project is exempt from permit requirements under Wisconsin Administrative Code - Chapter NR 411. No substantial impacts to air quality are expected.
D-2 Construction Stage Sound Quality	☒	☐	☐	☒	WisDOT Standard Specifications 107.8 (6) and 108.7.1 would apply.
D-3 Traffic Noise	☐	☐	☒	☐	A noise analysis was not required for this project. No impacts are anticipated.
D-4 Hazardous Substances or Contamination	☐	☐	☒	☒	No contaminated areas are expected to be impacted by the proposed action.
D-5 Stormwater	☐	☐	☒	☒	A combination of ditches with flatter side slopes, ditches with reduced longitudinal slope, flat bottom ditches, and permanent ditch checks would ensure pre-construction and post-construction runoff volumes to be the same, or would minimize increases in storm water runoff after construction to the extent practical.
D-6 Erosion Control	☐	☐	☒	☒	Best Management Practices would be utilized during construction to control runoff from the site.
E. OTHER FACTORS					
E-1	☐	☐	☐		N/A
E-2	☐	☐	☐		N/A

Basic Sheet 5
Alternatives Comparison Matrix
(All estimates, including costs, are based on conditions described in this document at the time of preparation. Additional agency or public involvement may change these estimates in the future.)

ENVIRONMENTAL ISSUE	UNIT MEASURE	ALTERNATIVES/SECTIONS			
		No Action	Speed Limit Red.	Maintenance Overlay Only	Resurfacing w Spot Safety and Geometric Improvements (**Preferred**)
Project Length	Miles	0	7.49	7.49	7.49
Preliminary Cost Estimate					
Construction *	Million $	0.10	0.01	2.2	16.1
Real Estate **	Million $	0	0	0	3.8
Total	Million $	0.10	0.01	2.2	19.9
Land Conversions					
Wetland Area Converted to ROW	Acres	0	0	0	0.92
Upland Habitat Area Converted to ROW	Acres	0	0	0	0
Other Area Converted to ROW	Acres	0	0	0	36.92
Total Area Converted to ROW	Acres	0	0	0	37.84
Real Estate					
Number of Farms Affected	Number	0	0	0	34
Total Area Required From Farm Operations	Acres	0	0	0	21.26 (Fee) 4.43 (Easement)
AIS Required	Yes/No	No	No	No	No
Farmland Rating	Score	0	0	0	33
Total Buildings Required	Number	0	0	0	3
Housing Units Required	Number	0	0	0	3
Commercial Units Required	Number	0	0	0	0
Other Buildings or Structures Required	Number (Type)	0	0	0	0
Environmental Issues					
Indirect Effects	Yes/No	No	No	No	No
Cumulative Effects	Yes/No	No	No	No	No
Environmental Justice Populations	Yes/No	No	No	No	No
Historic Properties	Number	0	0	0	0
Archeological Sites	Number	0	0	0	0
106 MOA Required	Yes/No	No	No	No	No
4(f) Evaluation Required	Yes/No	No	No	No	Yes
Flood Plain	Yes/No	No	No	No	Yes
Total Wetlands Filled	Acres	0	0	0	1.655
Stream Crossings	Number	0	0	0	2
Endangered Species	Yes/No	No	No	No	No
Air Quality Permit Required	Yes/No	No	No	No	No
Design Year Noise Sensitive Receptors No Impact Impacted	 Number Number	N/A	N/A	N/A	N/A
Contaminated Sites	Number	0	0	0	0

YOE = Year of Expenditure
* Preliminary Construction Cost Estimates are in YOE 2018 dollars (3% annual inflation rate assumed for estimate).
** Preliminary Real Estate Cost Estimates are in YOE 2016 dollars (3% annual inflation rate assumed for estimate).

Basic Sheet 6
Traffic Summary Matrix

	ALTERNATIVES/SECTIONS				
	WIS 164 County Q to Monches Road	WIS 164 Monches Road to Hubertus Road	WIS 164 Hubertus Road to WIS 167	WIS 164 WIS 167 to Pleasant Hill Road	WIS 164 Pleasant Hill Road to WIS 175
TRAFFIC VOLUMES					
Existing ADT Yr. 2013	9,600	8,000 (2010 ADT)	9,000	6,700	7,500
Const. Yr. ADT Yr. 2018	10,400	8,700	9,500	7,100	7,900
Const. Plus 10 Yr. ADT Yr. 2028	12,100	9,600	10,600	7,800	8,700
Design Yr. ADT Yr. 2038	13,800	10,500	11,600	8,500	9,600
DHV Yr. 2038	1,590	1,210	1,330	980	1,100
TRAFFIC FACTORS					
K_{100}(%)	11.5	11.5	11.5	11.5	11.5
D (%)	60/40	60/40	60/40	60/40	60/40
Design Year T (% of ADT)	8.4	8.4	8.4	8.4	8.4
T (% of DHV)	7.9	7.9	7.9	7.9	7.9
Level of Service (2038)	E	E	E	D	D
SPEEDS					
Existing Posted (mph)	55	55 (Monches Rd – Cherokee Tr) 50 (Cherokee Tr – Hubertus Rd)	50	50 (Hubertus Rd – 600' S. of Pleasant Hill Rd) 40 (600' S. of Pleasant Hill Rd – Pleasant Hill Rd)	40 (Pleasant Hill Rd – 600' N. of Pleasant Hill Rd) 55 (600' N. of Pleasant Hill Rd – WIS 175)
Future Posted (mph)	55	55 (Monches Rd – Cherokee Tr) 50 (Cherokee Tr - Hubertus Rd)	50	50	50 (Pleasant Hill Rd – 600' N. of Pleasant Hill Rd) 55 (600' N. of Pleasant Hill Rd – WIS 175)
Design Year 2038 Project Design Speed (mph)	60	60	60	60	60
OTHER (Specify)					
P (% of ADT)	15.7	15.7	15.7	15.7	15.7
K_8 (% OF ADT)	N/A	N/A	N/A	N/A	N/A

ADT = Average Daily Traffic
DHV = Design Hourly Volume
K [30/100/200] : K_{30} = Interstate, K_{100} = Rural, K_{200} = Urban, % = ADT in DHV
D = % DHV in predominate direction of travel
T = Trucks
P = % ADT in peak hour
K_8 = % ADT occurring in the average of the 8 highest consecutive hours of traffic on an average day. (Only required when a carbon monoxide analysis must be performed per Wisconsin Administrative Code - Chapter NR 411.)

Note: With the exception of the Speeds section, the traffic data presented in this matrix is the same for each alternative presented in Basic Sheet 2 including: No Build, Speed Limit Reduction, Maintenance Overlay Only, and Reconditioning with Spot Safety and Geometric Improvements (Preferred Alternative). The existing posted, future posted, and design speeds shown in the table above are for the No Build, Maintenance Overlay Only, and Reconditioning with Spot Safety and Geometric Improvements alternatives. Under the Speed Limit Reduction alterative, all future posted speeds would be 45 mph and the design speed would be 50 mph. Level of service for the section of WIS 164 from WIS 167 to Pleasant Hill Road would be E in design year 2038 for the No Build, Speed Limit Reduction, and Maintenance Overlay Only alternatives.

Basic Sheet 7
EIS Significance Criteria

When the significance of impact of a transportation project proposal is uncertain, an environmental assessment (ES) is prepared to assist in making this determination. If it is found that significant impact(s) will result, the preparation of an environmental impact statement (EIS) should commence immediately. Indicate whether the issue listed below is a concern for the proposed action or alternative. If the issue is a concern, explain how it is to be addressed or where it is addressed in this environmental document.

1) Will the proposed action stimulate substantial indirect environmental effects?

☒ No
☐ Yes – Explain or indicate where addressed.

Projects that are considered Categorical Exclusions do not require assessment of indirect and cumulative environmental effects as past experience with similar actions has indicated that these actions do not involve significant environmental impacts. Under the Federal Highway Administration guidelines and the Code of Federal Regulations (CFR) Title 23 Section 771.117(d), projects such as the proposed WIS 164 rehabilitation that modernize a highway through resurfacing; restoration; rehabilitation; reconstruction; addition of shoulders; or addition of auxiliary lanes including lanes for parking, weaving, turning or climbing may be considered Categorical Exclusions.

This project was also screened for indirect environmental impacts using WisDOT's Pre-Screening Worksheet for EA and ER Projects for Determining the Need to Conduct a Detailed Indirect Effects Analysis. The worksheet is attached to the Environmental Addendum A as Attachment 5. This pre-screening analysis did not indicate the potential for substantial indirect environmental effects.

Impacts to environmental resources for the proposed action are not considered to be substantial as they have been evaluated and avoidance and mitigation strategies have been coordinated with the appropriate agencies as shown in the following Factor Sheets; therefore, analysis of indirect and cumulative effects is not required.

2) Will the proposed action contribute to cumulative effects of repeated actions?

☒ No
☐ Yes – Explain or indicate where addressed.

See question 1 above for explanation.

3) Will the creation of a new environmental effect result from this proposed action?

☒ No
☐ Yes – Explain or indicate where addressed.

4) Will the proposed action impact geographically scarce resources?

☒ No
☐ Yes – Explain or indicate where addressed.

5) Will the proposed action have a precedent-setting nature?

☒ No
☐ Yes – Explain or indicate where addressed.

This project is consistent with the scope of a reconditioning project and no significant impacts to environmental resources were identified.

6) Is the degree of controversy associated with the proposed action high?

☐ No
☒ Yes – Explain or indicate where addressed.

A public hearing was held due to the degree of controversy about the proposed action. The public involvement meeting and public hearing summaries in the Environmental Addendum A section 5.A. and Factor Sheet 2 Question 10 demonstrate that there was a mix of both opposition and support for the project. The project is supported by the Village of Richfield, Town of Polk and Washington County.

No significant impact to any environmental resource was identified through the public hearing process or coordination with resource agencies; therefore, preparation of a higher level environmental document is not required for the proposed action.

7) Will the proposed action be in conflict with official agency plans or local, state, or national policies, including conflicts resulting from potential effects of transportation on land use and land use on transportation demand?

☒ No
☐ Yes – Explain or indicate where addressed.

Basic Sheet 8
Environmental Commitments

Identify and describe any commitments made to protect the environment. Indicate when the commitment should be implemented and who in WisDOT will have jurisdiction to assure fulfillment for each commitment. Note if the commitment will be recorded in the plans, "special provisions", "notes to construction" or some other written format. Note if the commitment is mandated by law, and therefore legally binding.

Commitments on Basic Sheet 8 supplement environmental commitments incorporated in WisDOT's Standard Specifications for Highway and Bridge Construction.

ATTACH A COPY OF THIS PAGE TO THE DESIGN STUDY REPORT AND THE PS&E SUBMITTAL PACKAGE

Factors	Commitments
A-1 General Economics	Access to residences and businesses for local and emergency vehicles during construction would be provided and addressed in the project special provisions. The WisDOT construction engineer will assure fulfillment of these measures during construction
A-2 Business	Access to residences and businesses for local and emergency vehicles during construction would be provided and addressed in the project special provisions. The WisDOT construction engineer will assure fulfillment of these measures during construction.
A-3 Agriculture	Access would be maintained to field entrances during construction. Normal erosion control measures would be taken. The WisDOT construction engineer will assure fulfillment of these measures during construction.
B-1 Community or Residential	Access to residences and businesses for local and emergency vehicles during construction would be provided and addressed in the project special provisions. The WisDOT construction engineer will assure fulfillment of these measures during construction.
B-2 Indirect Effects	No commitments needed.
B-3 Cumulative Effects	No commitments needed.
B-4 Environmental Justice	No commitments needed.
B-5 Historic Resources	No commitments needed.
B-6 Archaeological Sites	The following language will be added to the contract special provisions: WisDOT shall ensure an archaeologist is present to monitor project-related ground-disturbing activities adjacent to the cemetery site BWT-0035 Note: An archaeologist qualified to excavate human burial sites (per Wis. Stats. 157.70 (1) (i) and Wis. Admin Code § HS 2.04 (6) (a)) will oversee the monitoring activities. The WisDOT PM/Construction Engineer shall take measures to ensure that cemetery site BWT-0035 is not used for borrow or waste disposal and the site area should not be used for the staging of personnel, equipment and/or supplies Coordinate with WisDOT Environmental Services Section (Lynn Cloud (608) 266-0099) in regards to scheduling the archaeologist. A two week advance notice of any ground disturbance is preferred to ensure availability of the archaeologist. No ground disturbing activities should occur beyond the currently proposed project area without prior permission from the WHS in the area near cemetery site: BWT-0035, per Wis. Stat. 157.70. The WisDOT construction engineer will assure fulfillment of these measures during construction.
B-7 Tribal Issues	No commitments needed.

B-8 Section 4(f) and 6(f) or Other Unique Areas	All disturbed areas adjacent at 4(f) properties would be restored to their prior condition through restoration and landscaping after grading is complete. The WisDOT construction engineer will assure fulfillment of these measures during construction.
B-9 Aesthetics	No commitments needed.
C-1 Wetlands	Wetland fills of 1.655 acres will be mitigated at a location agreed upon by WisDOT and the Wisconsin DNR. The WisDOT project manager will assure fulfillment of this commitment.
C-2 Rivers, Streams & Floodplains	No in-stream activity work will be done in the streams crossing the project during the spawning time for fish, which is from May 1st to June 30th in any year. The WisDOT construction engineer will assure fulfillment of these measures during construction.
C-3 Lakes or other Open Water	No commitments needed.
C-4 Groundwater, Wells and springs	No commitments needed.
C-5 Upland Wildlife and Habitat	No commitments needed.
C-6 Coastal Zones	No commitments needed.
C-7 Threatened and Endangered Species	No commitments needed.
D-1 Air Quality	No commitments needed.
D-2 Construction Stage Sound Quality	Check all that apply: ☒ WisDOT Standard Specification 107.8(6) and 108.7.1 will apply. ☐ Special construction stage noise abatement measures will be required. Describe:
D-3 Traffic Noise	No commitments needed.
D-4 Hazardous Substances Contamination	No commitments needed.
D-5 Stormwater	Storm water management would be carried out in accordance with TRANS 401. Storm water management would include discharging runoff water into flat, grass-lined ditches and swales to slow the runoff water and settle out contaminants before entering adjacent wetlands. A combination of ditches with flatter side slopes, ditches with reduced longitudinal slope, flat bottom ditches, and permanent ditch checks would ensure pre-construction and post-construction runoff volumes to be the same, or would minimize increases in storm water runoff to the extent practical. The WisDOT construction engineer will assure fulfillment of these measures during construction.
D-6 Erosion Control	Erosion control in accordance with TRANS 401 and WisDOT's Facilities Development Manual, Chapter 10 is outlined in the plans and specifications (Erosion Control Plan – ECP). The contractor would also complete and administer an approved Erosion Control Implementation Plan – ECIP with enforcement by the WisDOT construction engineer. Additional borrow and waste sites not included in the original ECIP may not be used until a revised ECIP is approved by WisDOT. Short-term / temporary erosion control measures during construction would include erosion bales, silt fence, erosion mats, special ditch checks, temporary seeding, permanent seeding and mulching of exposed soil, slope sodding, erosion mat on steep slopes, and dust abatement. The WisDOT construction engineer will assure fulfillment of these measures during construction.
E Other	N/A

Factor Sheet A-1

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Briefly describe the existing economic characteristics of the area around the project:

Economic Activity	Description
a. Agriculture	There are active farms throughout the project corridor.
b. Retail business	There are two bar/restaurants located adjacent to the project corridor.
c. Wholesale business	None
d. Heavy industry	None
e. Light industry	None
f. Tourism	Holy Hill and the Basilica of the National Shrine of Mary, Help of Christians is located west of the project corridor, south of WIS 167.
g. Recreation	Richfield Historical Park and Nature Park is located east of WIS 164, south of Pleasant Hill Road. Heritage Trails Park is located west of WIS 164, north of County E. Use of the parks would not be impacted by the proposed action.
h. Forestry	There are no known managed forests in the project area.
i.	N/A

2. Discuss the economic advantages and disadvantages of the proposed action and whether advantages would outweigh disadvantages. Indicate how the project would affect the characteristics described in item 1 above:

The improvements to WIS 164 have been proposed in response to poor roadway condition, and inefficient traffic operations and safety concerns at spot locations. The improvements would provide improved access to the project area by creating more efficient and safer traffic operations. It is anticipated that economic benefits from the project would outweigh losses from initial business interruption and long term costs associated with crashes and roadway maintenance. Failure to implement the proposed improvements would result in deteriorated traffic conditions at intersections, increased delays along WIS 164 and impedance of turning movements at side streets and driveways.

It is expected that the advantages would outweigh the disadvantages due to the relatively short duration of inconveniences during one construction season. While disadvantages would be realized during construction, advantages would be realized immediately following construction and until the design year of 2038.

3. What effect will the proposed action have on the potential for economic development in the project area?

☒ **The proposed project will have no effect on economic development.**

☐ **The proposed project will have an effect on economic development.**
☐ Increase, describe: _____

☐ Decrease, describe: _____+

Factor Sheet A-2

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Is a Conceptual Stage Relocation Plan attached to this document?

☐ Yes

☒ No - (Explain) There would be no businesses relocated as part of this project.

2. Describe the economic development or existing business areas affected by the proposed action:

The land use adjacent to the project corridor is primarily agricultural and residential with limited commercial business within the project limits. The commercial business along the corridor is comprised of two bar/restaurants.

3. Identify and discuss existing modes of transportation and their traffic within the economic development or existing business area:

The primary mode of transportation along WIS 164 consists of 91.6% passenger vehicles and 8.4% trucks and buses. There is no mass transit within the project corridor. Bicyclists utilize WIS 164. Traffic within the project corridor consists largely of residents, commuters, and people utilizing local businesses and services.

See the Traffic Summary Matrix on Basic Sheet 6 for more detailed information on traffic in the project corridor.

4. **Identify and discuss effects on the economic development potential and existing businesses that are dependent upon the transportation facility for continued economic viability:**

☐ The proposed project will have no effect on a transportation-dependent business or industry.

☒ The proposed action may change the conditions for a business that is dependent upon the transportation facility. Identify effects, including effects which may occur during construction.

WIS 164 would be closed to through traffic; however, the roadway would remain open to local businesses and residences throughout construction. While there may be some temporary disruption during construction, long-term effects on businesses are not anticipated.

5. Describe both beneficial and adverse effects on:

A. The existing business area affected by the proposed action. Include any factors identified by business people that they feel are important or controversial.

Business owners are concerned about the disruption to traffic and difficulties for customers and deliveries to access their businesses. Access to businesses (local traffic) will be maintained during construction. Short term adverse effects include temporary disruptions to access during construction. Long-term, the existing businesses may benefit from the proposed action through a desire of the general public to use an improved facility.

B. The existing employees in businesses affected by the proposal. Include, as appropriate, a discussion of effects on minority populations or low-income populations.

Existing employees would benefit from improved travel conditions on the reconstructed roadway. Temporary disruptions to access would also adversely affect employees of the adjacent business. Access to businesses would be maintained during construction.

6. Estimated number of businesses and jobs that would be created or displaced because of the project:

Business/Job Type	Businesses			Jobs	
	Created	Displaced	Value	Created	Displaced
L. Retail	0	0	0	0	0
Service	0	0	0	0	0
Wholesale	0	0	0	0	0
Manufacturing	0	0	0	0	0
Other (List)	0	0	0	0	0

7. Are any owners or employees of created or displaced businesses elderly, disabled, low-income or members of a minority group?

☒ No
☐ Yes – If yes, complete Factor Sheet B-4, Environmental Justice Evaluation.

8. Is Special Relocation Assistance Needed?

☒ No
☐ Yes – Describe special relocation needs.

9. Identify all sources of information used to obtain data in item 8:

☐ WisDOT Real Estate Conceptual Stage Relocation Plan ☐ Multiple Listing Service (MLS)
☐ Newspaper listing(s) ☐ Other - Identify:

10. Describe the business relocation potential in the community:

A. Total number of available business buildings in the community. _____

B. Number of available and comparable business buildings by type and price (Include business buildings in price ranges comparable to those being dislocated, if any).

Number of available and comparable type business buildings in the price range of _____
Number of available and comparable type business buildings in the price range of _____
Number of available and comparable type business buildings in the price range of _____

Not applicable as there would be no business relocations as part of this project.

11. Describe how relocation assistance will be provided in compliance with the WisDOT Relocation Manual or FHWA regulation 49 CFR Part 24. Check all that apply:

☐ Business acquisitions and relocations will be completed in accordance with the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended." In addition to providing for payment of "Just Compensation" for property acquired, additional benefits are available to eligible displaced persons forced to relocate from their business. Some available benefits include relocation advisory services, reimbursement of moving expenses, replacement of business payments. In compliance with State law, no person would be displaced unless a comparable replacement business would be provided.

Compensation is available to all displaced persons without discrimination. Before initiating property acquisition activities, property owners will be contacted and given an explanation of the details of the acquisition process and Wisconsin's Eminent Domain Law under Section 32.05, Wisconsin Statutes. Any property to be acquired will be inspected by one or more professional appraisers. The property owner will be invited to accompany the appraiser during the inspection to ensure the appraiser is informed of every aspect of the property. Property owners will be given the opportunity to obtain an appraisal by a qualified appraiser that will be considered by WisDOT in establishing just compensation. Reasonable cost of an owner's appraisal will be reimbursed to the owner if received within 60 days of initiation of negotiations. Based on the appraisal(s) made, the value of the property will be determined, and that amount offered to the owner.

☐ Describe other relocation assistance requirements, not identified above.

Not applicable as there would be no business relocations as part of this project.

12. Identify any difficulties relocating a business displaced by the proposed action and describe any special services needed to remedy identified unusual conditions:

Not applicable as there would be no business relocations as part of this project.

13. Describe any additional measures that will be used to minimize adverse effects or provide benefits to those relocated. Also discuss accommodations made to minimize adverse effects to businesses that may be affected by the project, but not relocated:

WIS 164 would be closed to through traffic, but emergency access would be provided at all times and the roadway would remain open to local businesses throughout construction. Access to properties would be maintained for local traffic and emergency vehicles.

Factor Sheet A-3

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Total acquisition interest, by type of agricultural land use:

Type of Land Acquired From Farm Operations	Type of Acquisition (acres)		Total Area Acquired (acres)
	Fee Simple	Easement	
Crop land and pasture	18.19	3.06	21.25
Woodland	0.70	0.19	0.89
Land of undetermined or other use (e.g., wetlands, yards, roads, etc.)	2.37	1.18	3.55
Totals	21.26	4.43	25.69

2. Indicate number of farm operations from which land will be acquired:

Acreage to be Acquired	Number of Farm Operations
Less than I acre	26
1 acre to 5 acres	8
More than 5 acres	0

3. Is land to be converted to highway use covered by the Farmland Protection Policy Act?

☐ No
- ☐ The land was purchased prior to August 6, 1984 for the purpose of conversion.
- ☐ The acquisition does not directly or indirectly convert farmland.
- ☐ The land is clearly not farmland
- ☐ The land is already in, or committed to urban use or water storage.

☒ Yes (This determination is made by the Natural Resources Conservation Service (NRCS) via the completion of the Farmland Impact Conversion Rating Form, NRCS Form AD-1006) **See Exhibit 12.**
- ☒ The land is prime farmland which is not already committed to urban development or water storage.
- ☐ The land is unique farmland.
- ☐ The land is farmland which is of statewide or local importance as determined by the appropriate state or local government agency.

4. Has the Farmland Impact Conversion Rating Form (AD-1006) been submitted to NRCS?

☒ No - Explain.
Per FDM 5-5-5 no notification to the NRCS is required if the Site Assessment Criteria Score (Part VI of the from) is less than 60 points for this project alternative. Date Form AD-1006 completed. October 12, 2012.

☐ Yes
- ☐ The Site Assessment Criteria Score (Part VI of the form) is less than 60 points for this project alternative. Date Form AD-1006 completed. _____
- ☐ The Site Assessment Criteria Score is 60 points or greater. Date Form AD-1006 completed. _____

5. Is an Agricultural Impact Statement (AIS) Required?

☒ No
- ☐ Eminent Domain will not be used for this acquisition
- ☐ The project is a "Town Highway" project
- ☒ The acquisition is less than 1 acre
- ☒ The acquisition is 1-5 acres and DATCP chooses not to do an AIS.
- ☐ Other. Describe _____

☐ Yes
- ☐ Eminent Domain may be used for this acquisition.
- ☐ The project is not a "Town Highway" project
- ☐ The acquisition is 1-5 acres and DATCP chooses to do an AIS.
- ☐ The acquisition is greater than 5 acres

6. Is an Agricultural Impact Notice (AIN) Required?

☐ No, the project is not a State Trunk Highway Project - AIN not required but complete questions 7-16.

☐ Yes, the project is a State Trunk Highway Project - AIN may be required.

Is the land acquired "non-significant"?

☐ Yes - (All must be checked) An AIN is not required but complete questions 7-16.
- ☐ Less than 1 acre in size
- ☐ Results in no severances
- ☐ Does not significantly alter or restrict access
- ☐ Does not involve moving or demolishing any improvements necessary to the operation of the farm
- ☐ Does not involve a high value crop

☒ No
- ☒ Acquisition 1 to 5 acres - **AIN required**. Complete Pages 1 and 2, Form DT1999, (Pages 1 and 2, Figure 1, Procedure 21-25-30.) See Exhibit 12 – Department of Agriculture, Trade & Consumer Protection Correspondence, U.S. Department of Agriculture Farmland Conversion Impact Rating Sheet, and Agricultural Impact Notice
- ☐ Acquisition over 5 acres - **AIN required**. Complete Pages 1, 3 and 4, Form DT1999. (Pages 1, 3 and 4, Figure 1, Procedure 21-25-30)

If an AIN is completed, do not complete the following questions 7-16.

See Exhibit 12 - Department of Agriculture, Trade & Consumer Protection Correspondence, U.S. Department of Agriculture Farmland Conversion Impact Rating Sheet, and Agricultural Impact Notice

7. Identify and describe effects to farm operations because of land lost due to the project:

☐ Does Not Apply.

☐ Applies – Discuss.

8. Describe changes in access to farm operations caused by the proposed action:

☐ Does Not Apply.

☐ Applies – Discuss.

9. Indicate whether a farm operation will be severed because of the project and describe the severance (include area of original farm and size of any remnant parcels):

☒ Does Not Apply.

☐ Applies – Discuss.

10. Identify and describe effects generated by the acquisition or relocation of farm operation buildings, structures or improvements (e.g., barns, silos, stock watering ponds, irrigation wells, etc.). Address the location, type, condition and importance to the farm operation as appropriate:

☐ Does Not Apply.

☐ Applies – Discuss.

11. Describe effects caused by the elimination or relocation of a cattle/equipment pass or crossing. Attach plans, sketches, or other graphics as needed to clearly illustrate existing and proposed location of any cattle/equipment pass or crossing:

- ☐ Does Not Apply.
- ☐ Replacement of an existing cattle/equipment pass or crossing is not planned. Explain.
- ☐ Cattle/equipment pass or crossing will be replaced.
- ☐ Replacement will occur at same location.
- ☐ Cattle/equipment pass or crossing will be relocated. Describe.

12. Describe the effects generated by the obliteration of the old roadway:

- ☒ Does Not Apply.
- ☐ Applies – Discuss.

13. Identify and describe any proposed changes in land use or indirect development that will affect farm operations and are related to the development of this project:

- ☐ Does Not Apply.
- ☐ Applies – Discuss.

14. Describe any other project-related effects identified by a farm operator or owner that may be adverse, beneficial or controversial:

- ☐ No effects indicated by farm operator or owner.
- ☐ Applies – Discuss.

15. Indicate whether minority or low-income population farm owners, operators, or workers will be affected by the proposal: (Include migrant workers, if appropriate.)

- ☐ No
- ☐ Applies – Discuss.

16. Describe measures to minimize adverse effects or enhance benefits to agricultural operations:

Factor Sheet B-1

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. **Give a brief description of the community or neighborhood affected by the proposed action:**

Name of Community/Neighborhood
Village of Richfield
Incorporated
☒ Yes ☐ No

Total Population
11,300 (2010 Census)

Demographic Characteristics

Census Year 2010	% of Population
White	96.9
African American	0.1
Asian	1.1
Hispanic/Latino	1.4
Owner Occupied housing	91.6

Name of Community/Neighborhood
Town of Polk
Incorporated
☐ Yes ☒ No

Total Population
3,937 (2010 Census)

Demographic Characteristics

Census Year 2010	% of Population
White	98.0
African American	0.3
Asian	0.5
Hispanic/Latino	1.0
Owner Occupied housing	90.9

2. **Identify and discuss existing modes of transportation and their importance within the community or Neighborhood:**

The primary mode of transportation is driving for commuting to work, schools, and to local and nearby businesses, and churches (passenger vehicles make up over 90% of traffic). The large percentage of passenger vehicle use for traveling to/from work, schools, and to local and nearby businesses and churches stresses the importance of providing a safe, efficient, and well maintained roadway system for this community.

3. Identify and discuss the probable changes resulting from the proposed action to the existing modes of transportation and their function within the community or neighborhood:

The proposed action would not be expected to change the existing modes of transportation. With the addition of bicycle accommodations it is anticipated that there may be a small increase in the number of bicycle commuters. The area is relatively rural in nature and a major change in the way people commute is not expected with this project.

4. Briefly discuss the proposed action's direct and indirect effect(s) on existing and planned land use in the community or neighborhood:

The proposed action is not expected to change the existing or planned land use within the area.

5. Address any changes to emergency or other public services during and after construction of the proposed project:

It is anticipated that the roadway would be closed to through traffic during construction. However, local access to homes, businesses, and schools would be maintained during this time. While temporary inconveniences may occur during construction, no interruption to vital emergency or public services would be expected. After construction, access to adjacent properties and side streets would remain the same as prior to construction for emergency vehicles and other services.

6. Describe any physical or access changes that will result. This could include effects on lot frontages, side slopes or driveways (steeper or flatter), sidewalks, reduced terraces, tree removals, vision corners, etc.:

Under the proposed action in the resurfacing segment, the most pronounced physical change would be the new roadway overlay pavement and widened roadbed. Driveway slopes within the resurfacing segment are expected to remain approximately the same. Tree removals and regrading of ditches would be expected for the widened roadbed in the resurfacing segment and in areas widened for proposed turn and bypass lanes.

Within the reconstruction segments, the most pronounced physical changes would include cutting and regrading four hills that do not meet current standards for stopping sight distance and exceed maximum vertical slopes. In these areas there will be tree removals, cutting of hills adjacent to the roadway, increases in driveway slopes, addition of curb and gutter and retaining walls in some locations.

At the WIS 167/WIS 164 intersection, the most pronounced physical change would be the main roundabout elements including the central island, colored concrete truck apron, and circulatory roadway.

At the Pleasant Hill Road/WIS 164 intersection the most pronounced physical changes would include the shifting of WIS 164 to the west and the removal of two existing residences on the west side of WIS 164 to accommodate the realigned roadway.

7. Indicate whether a community/neighborhood facility will be affected by the proposed action and indicate what effect(s) this will have on the community/neighborhood:

The proposed action is expected to have a minor temporary effect on Friess Lake School during construction. Parents may need to adjust the routes they use to drop off students at the school during when the school year overlaps with construction work. The roundabout reconstruction work would be completed during the summer months, starting after the school year is finished in June and completed prior to the start of the following school year in September.

The proposed action may also have minor temporary effect on people who attend St. Gabriel Catholic Parish, Wooded Hills Bible Church, and First Presbyterian Church during construction.

8. Identify and discuss factors that residents have indicated to be important or controversial:

- Safety concerns at intersections and driveways with crest vertical curve sight distance constraints and areas with steep grades and blowing snow.
- Delays at the WIS 167/WIS 164 intersection.
- Comments were received that turn lanes and bypass lanes should be added at intersections throughout the corridor and that turning radii should be increased.
- Requests were made to reduce the speed limit to 40 or 45 mph throughout the corridor. Some public information meeting attendees believed that current travel speeds are too fast.
- A request was made for better snowmobile accommodation in the project corridor.
- There were comments in favor of not doing any work on WIS 164. It was felt there was not funding available to do the work and that the project will ruin the rural character of the corridor.

- There was both support and opposition for roundabouts. Some public information meeting attendees like the roundabout at the County Q/WIS 164 intersection, but many don't like it even though it dramatically improved the traffic back-ups.
- Some public information meeting attendees would like to preserve the rural character of the corridor.
- There was a request for consistent speed limits through the project limits. The existing posted speed goes from 55 mph to 50 mph to 40 mph to 55 mph. They noted that this is confusing and difficult to enforce.
- Some public information meeting attendees would like to see WIS 164 expanded to 4 lanes now.
- Several attendees noted localized drainage issues.

9. List any Community Sensitive Design considerations, such as design considerations and potential mitigation measures.

Bicycle accommodations would be included in the WIS 164 project to address bicyclist needs.

10. Indicate the number and type of any residential buildings that will be acquired because of the proposed action. If either item a) or b) is checked, items 11 through 18 do not need to be addressed or included in the environmental document. If item c) is checked, complete items 11 through 18 and attach the Conceptual Stage Relocation Plan to the environmental document:

a. ☐ None identified.
b. ☐ No occupied residential building will be acquired as a result of this project. Provide number and description of non-occupied buildings to be acquired.
c. ☒ Occupied residential building(s) will be acquired. Provide number and description of buildings, e.g., single family homes, apartment buildings, condominiums, duplexes, etc.

Two occupied single family homes and one occupied multi-family home (2 of 3 units occupied) would be acquired.

11. Anticipated number of households that will be relocated from the occupied residential buildings identified in item 10c, above:

Total Number of Households to be Relocated.
4

(Note that this number may be greater than the number shown in 10c) above because an occupied apartment building may have many households.)

a. Number by Ownership

Number of Households Living in Owner Occupied Building	Number of Households Living in Rented Quarters
2	2

b. Number of households to be relocated that have.

1 Bedroom	2 Bedroom	3 Bedroom	4 or More Bedrooms
0	0	4	0

c. Number of relocated households by type and price range of dwelling.

Number of Single Family Dwelling 2	Price Range $188,000 - $197,000
Number of Multi-Family Dwellings 1	Price Range $142,000
Number of Apartment 0	Price Range N/A

12. Describe the relocation potential in the community:

a. Number of Available Dwellings (within the Village of Richfield Price Range $125,000 - $210,000)

1 Bedroom	2 Bedrooms	3 Bedrooms	4 or More Bedrooms
0	0	0	1

b. Number of Available and Comparable Dwellings by Location (Price Rand $125,000 - $210,000)

1 home within Richfield (1 mile)
15 homes within Jackson (7 miles)
9 homes within Slinger (8 miles)
76 homes within West Bend (15 miles)
60 homes within Hartford (12 miles)
18 homes within Germantown (5 miles)

c. Number of Available and Comparable Dwellings by Type and Price. (Include dwellings in price ranges comparable to those being dislocated, if any.)

Single Family Dwellings	Price Range
Jackson (15 homes)	$134,000-$210,000
Slinger (9 homes)	$129,900-$209,900
West Bend (76 homes)	$125,000-$205,900
Hartford (60 homes)	$125,000-$210,000
Germantown (18homes)	$139,000-$210,000
Multi-Family Dwellings	**Price Range**
N/A	N/A
Apartments	**Price Range**
6 (4 in West Bend, 1 in Hartford, 1 in Germantown)	$785-$995 per month

13. Identify all the sources of information used to obtain the data in item 12:

☒ WisDOT Real Estate Conceptual Stage Relocation Plan
☒ Newspaper Listing(s)
Milwaukee Journal Sentinel
West Bend Daily News
Washington County magazines – apartments for rent
☒ Multiple Listing Service (MLS)
☒ Other – Identify Internet Real Estate Sites
ForRent.com
rent.com
housesandapartmentsforrent.com

14. Indicate the number of households to be relocated that have the following special characteristics:

☐ None identified.
☒ Yes - 4 total households to be relocated. Complete table below

Special Characteristics	Number of Households with Individuals with Special Characteristics
Elderly	0
Disabled	0
Low income	0
Minority	0
Household of large family (5 or more)	1
Not Known	0
No special characteristics	3

15. Describe how relocation assistance will be provided in compliance with the WisDOT Relocation Manual or FHWA regulation 49 CFR Part 24:

☒ Residential acquisitions and relocations will be completed in accordance with the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended." In addition to providing for payment of "Just Compensation" for property acquired, additional benefits are available to eligible

displaced persons required to relocate from their residence. Some available benefits include relocation advisory services, reimbursement of moving expenses, replacement housing payments, and down payment assistance. In compliance with State law, no person would be displaced unless a comparable replacement dwelling would be provided. Federal law also requires that decent, safe, and sanitary replacement dwelling must be made available before any residential displacement can occur.

Compensation is available to all displaced persons without discrimination. Before initiating property acquisition activities, property owners would be contacted and given an explanation of the details of the acquisition process and Wisconsin's Eminent Domain Law under Section 32.05, Wisconsin Statutes. Any property to be acquired would be inspected by one or more professional appraisers. The property owner would be invited to accompany the appraiser during the inspection to ensure the appraiser is informed of every aspect of the property. Property owners will be given the opportunity to obtain an appraisal by a qualified appraiser that will be considered by WisDOT in establishing just compensation. Based on the appraisal(s) made, the value of the property would be determined, and that amount offered to the owner.

☐ Identify other relocation assistance requirements not identified above.

16. Identify any difficulties or unusual conditions for relocating households displaced by the proposed action:

No difficulties or unusual conditions for relocating households were identified. See Exhibit 11 – Conceptual Stage Relocation Plan.

17. Indicate whether Special Relocation Assistance Service will be needed. Describe any special services or housing programs needed to remedy identified difficulties or unusual conditions noted in item #14 above:

☒ None identified

☐ Yes - Describe services that will be required

18. Describe any additional measures that will be used to minimize adverse effects or provide benefits to those relocated, those remaining, or to community facilities affected:

Coordination has begun with households that would be relocated to ensure they understand the process and to minimize adverse effects to the households.

Factor Sheet B-8

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Property Name:

Richfield Historical Park and Nature Park

2. Location:

Village of Richfield, Section 9, T-9-N, R-19-E (East of WIS 164, south of Pleasant Hill Road)

3. Ownership or Administration:

Village of Richfield

4. Type of Resource:

- ☒ Public Park.
- ☐ Recreational lands.
- ☐ Ice Age National Scenic Trail.
- ☐ NRCS Wetland Reserve Program.
- ☐ Wildlife Refuge.
- ☐ Waterfowl Refuge.
- ☐ Historic/Archaeological Site eligible for the National Register of Historic Places (NRHP).
- ☐ Other – Identify:

5. Do FHWA requirements for section 4(f) apply to the project's use of the property?

- ☒ No - Check all that apply:
  - ☐ Project is not federally funded.
  - ☒ No land will be acquired in fee or PLE and the alternative will not affect the use.
  - ☐ Property is not on or eligible for the NRHP.
  - ☐ Property is on or eligible for the NRHP however includes a de minimus effect finding.
  - ☐ Interstate Highway System Exemption.
  - ☐ Other - Explain:

A temporary limited occupancy (TLE) of the Section 4(f) resource will be required. The officials with jurisdiction over the Section 4(f) resource have agreed that the Temporary Occupancy of Land Section 4(f) exception applies to the resource. See Exhibit 18 - Impact to Section 4(f) Property Correspondence for a copy of the written agreement.

- ☐ Yes - Check all that apply:
  - ☐ Indicate which of the Programmatic/Negative Declaration 4(f) Evaluation(s) applies.
    - ☐ Historic Bridge.
    - ☐ Park minor involvement.
    - ☐ Historic site minor involvement.
    - ☐ Independent bikeway or walkway.
    - ☐ Great River Road.
    - ☐ Net Benefit to Section 4(f) Property. Explain: _____
  - ☐ Full 4(f) evaluation approved on _____.

6. Was special funding used to acquire the land or to make improvements on the property?

☒ No - Special funding was not used for the acquisition of this property.

☐ Yes:

- ☐ s.6(f) LWCF (Formerly LAWCON).
- ☐ Dingell-Johnson (D/J funds).
- ☐ Pittman-Robertson (P/R funds).
- ☐ Other – Describe:

7. Describe the significance of the property:

The Richfield Historical Park and Nature Park is located adjacent to the Coney-Oconomowoc Nature Preserve. The Historical Park is comprised of several buildings that the Richfield Historical Society is restring and preserving to create a living museum of Richfield's history. This park includes log buildings from the time of the early settlers and continues through life on the saw and grist mill homestead, and then on to the era of cash cropping and dairy farming.

There are several distinctive areas at the 29-acre park:

- The Grist Mill, which is the central focus of the park, with all the original equipment intact. This area includes the miller's home, also being restored, and supporting buildings
- Pioneer Homestead, featuring log buildings which enlighten visitors about the life style of the early settlers in Richfield
- Other areas yet to be developed into more educational opportunities

8. Describe the proposed alternative's effects on this property:

a. Describe any effects on or uses of land from the property. For other areas, include or attach statements from officials having jurisdiction over the property which discusses the alternative's effects on the property: **(A map, sketch, plan, or other graphic which clearly illustrates use of the property and the project's use and effects on the property must be included.)**

A temporary limited easement would be required at the Richfield Historical Park and Nature Park to replace the culvert pipe under the driveway to the park and regrade the ditches adjacent to the park. All disturbed areas would be restored to their prior condition after construction and regrading are complete. There would be no permanent changes to the park entrance, park sign, or any park land due to the proposed action. See Exhibit 7 – Preliminary Plan View Layouts for proposed work adjacent to the Richfield Historical Park and Nature Park. The use of the park would not be impacted or modified as part of this action.

b. Discuss the following alternatives and describe whether they are feasible and prudent and why:

1. Do nothing alternative.

The purpose of the project is to address poor pavement condition, safety, traffic flow, and to provide for adequate bicycle facilities. The do nothing alternative is not feasible as it does not address the needs of the project.

2. Improvement without using the 4(f) lands.

To improve WIS 164 to meet the purpose and need of the project without impacting the 4(f) lands, the roadway could be shifted slightly to the west to allow for the necessary widening of WIS 164 to meet current design standards. This alternative would require additional reconstruction on the west side of the road and to the north and south requiring additional fee right of way acquisition. This alternative would not be prudent given the additional costs required to shift the roadway away from the park to avoid a minor temporary impact.

3. Alternatives on new location.

This project is a reconditioning project to improve the condition and safety of the existing roadway, therefore an alternative on new location was not evaluated.

9. Indicate which measures will be used to minimize adverse effects, mitigate for unavoidable adverse effects or enhance beneficial effects:

- ☐ Replacement of lands used with lands of reasonably equivalent usefulness and location, and of at least comparable value.
- ☐ The Small Conversion Policy for Lands Subject to Section 6(f) will be used.
- ☐ Replacement of facilities impacted by the project including sidewalks, paths, lights, trees, and other facilities.
- ☒ Restoration and landscaping of disturbed areas.
- ☐ Incorporation of design features and habitat features where necessary to reduce or minimize impacts to the section 4(f) property.
- ☐ Payment of the fair market value of the land and improvement taken.
- ☐ Improvements to the remaining 4(f) site equal to the fair market value of the land and improvements taken.
- ☐ Such additional or alternative mitigation measures determined necessary based on consultation with officials having jurisdiction. The additional or alternative mitigation measures are listed or summarized below:

- ☐ Property is a historic property or an archeological site. The conditions or mitigation stipulations are listed or summarized below:

- ☐ Other – Describe:

10. Briefly summarize the results of coordination with other agencies that were consulted about the project and its effects on the property:

A letter was sent to the Village of Richfield describing the proposed impacts to Richfield Historical Park and Nature Park. The officials with jurisdiction over the Section 4(f) resource have agreed that the Temporary Occupancy of Land Section 4(f) exception applies to the resource. See Exhibit 18 - Impact to Section 4(f) Property Correspondence for a copy of the written agreement.

Factor Sheet B-8

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Property Name:

Heritage Trails County Park

2. Location:

Town of Polk, Section 29, T-10-N, R-19-E (West of WIS 164, north of County E)

3. Ownership or Administration:

Washington County

4. Type of Resource:

- ☒ Public Park.
- ☐ Recreational lands.
- ☐ Ice Age National Scenic Trail.
- ☐ NRCS Wetland Reserve Program.
- ☐ Wildlife Refuge.
- ☐ Waterfowl Refuge.
- ☐ Historic/Archaeological Site eligible for the National Register of Historic Places (NRHP).
- ☐ Other – Identify:

5. Do FHWA requirements for section 4(f) apply to the project's use of the property?

- ☒ No - Check all that apply:
  - ☐ Project is not federally funded.
  - ☒ No land will be acquired in fee or PLE and the alternative will not affect the use.
  - ☐ Property is not on or eligible for the NRHP.
  - ☐ Property is on or eligible for the NRHP however includes a de minimus effect finding.
  - ☐ Interstate Highway System Exemption.
  - ☐ Other - Explain:

A temporary limited occupancy (TLE) of the Section 4(f) resource will be required. The officials with jurisdiction over the Section 4(f) resource have agreed that the Temporary Occupancy of Land Section 4(f) exception applies to the resource. See Exhibit 18 - Impact to Section 4(f) Property Correspondence for a copy of the written agreement.

- ☐ Yes - Check all that apply:
  - ☐ Indicate which of the Programmatic/Negative Declaration 4(f) Evaluation(s) applies.
    - ☐ Historic Bridge.
    - ☐ Park minor involvement.
    - ☐ Historic site minor involvement.
    - ☐ Independent bikeway or walkway.
    - ☐ Great River Road.
    - ☐ Net Benefit to Section 4(f) Property. Explain: _____
  - ☐ Full 4(f) evaluation approved on _____.

6. Was special funding used to acquire the land or to make improvements on the property?

☒ No - Special funding was not used for the acquisition of this property.

☐ Yes:

- ☐ s.6(f) LWCF (Formerly LAWCON).
- ☐ Dingell-Johnson (D/J funds).
- ☐ Pittman-Robertson (P/R funds).
- ☐ Other – Describe:

7. Describe the significance of the property:

Heritage Trails County Park was acquired by Washington County Park System in 1978. The 234 acres of rolling Kettle Moraine hills, valleys and meadows provide many panoramic views, miles of hiking trails and picnic opportunities. Park Amenities include:

- Picnic area with views of Holy Hill
- Playground equipment
- Portable restrooms
- Hiking trails
- 1 reservable shelter
- Soccer fields

8. Describe the proposed alternative's effects on this property:

a. Describe any effects on or uses of land from the property. For other areas, include or attach statements from officials having jurisdiction over the property which discusses the alternative's effects on the property: **(A map, sketch, plan, or other graphic which clearly illustrates use of the property and the project's use and effects on the property must be included.)**

A temporary limited easement would be required at the Heritage Trails County Park to regrade the ditch adjacent to the park. All disturbed areas would be restored to their prior condition after the regrading is complete. There would be no permanent changes to the park land. See Exhibit 7 – Preliminary Plan View Layouts for proposed work adjacent to Heritage Trails County Park. The use of the park would not be impacted or modified as part of this action.

b. Discuss the following alternatives and describe whether they are feasible and prudent and why:

1. Do nothing alternative.

The purpose of the project is to address poor pavement condition, safety, traffic flow, and to provide for adequate bicycle facilities. The do nothing alternative is not feasible as it does not address the needs of the project.

2. Improvement without using the 4(f) lands.

To improve WIS 164 to meet the purpose and need of the project without impacting the 4(f) lands, the roadway could be shifted slightly to the east to allow for the necessary widening of WIS 164 to meet current design standards. This alternative would require additional reconstruction on the east side of the road and to the north and south requiring additional fee right of way acquisition. This alternative would not be prudent given the additional costs required to shift the roadway away from the park to avoid a minor temporary impact.

3. Alternatives on new location.

This project is a reconditioning project to improve the condition and safety of the existing roadway, therefore an alternative on new location was not evaluated.

9. Indicate which measures will be used to minimize adverse effects, mitigate for unavoidable adverse effects or enhance beneficial effects:

- ☐ Replacement of lands used with lands of reasonably equivalent usefulness and location, and of at least comparable value.
- ☐ The Small Conversion Policy for Lands Subject to Section 6(f) will be used.
- ☐ Replacement of facilities impacted by the project including sidewalks, paths, lights, trees, and other facilities.
- ☒ Restoration and landscaping of disturbed areas.
- ☐ Incorporation of design features and habitat features where necessary to reduce or minimize impacts to the section 4(f) property.
- ☐ Payment of the fair market value of the land and improvement taken.
- ☐ Improvements to the remaining 4(f) site equal to the fair market value of the land and improvements taken.
- ☐ Such additional or alternative mitigation measures determined necessary based on consultation with officials having jurisdiction. The additional or alternative mitigation measures are listed or summarized below:

- ☐ Property is a historic property or an archeological site. The conditions or mitigation stipulations are listed or summarized below:

- ☐ Other – Describe:

10. Briefly summarize the results of coordination with other agencies that were consulted about the project and its effects on the property:

A letter was sent to the Washington County Parks Department describing the proposed impacts to Heritage Trails County Park. The officials with jurisdiction over the Section 4(f) resource have agreed that the Temporary Occupancy of Land Section 4(f) exception applies to the resource. See Exhibit 18 - Impact to Section 4(f) Property Correspondence for a copy of the written agreement.

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Factor Sheet B-9

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Landscape Characteristics:

a. Identify and briefly describe the visual character of the landscape:

The landscape encompassing the WIS 164 project area is characterized by rolling terrain. Land use in the area is primarily residential and agricultural with very limited commercial development along the project corridor. Mature deciduous trees are scattered along the project corridor

b. Indicate the visual quality of the view-shed and identify landscape elements which would be visually sensitive:

On WIS 164, the existing deteriorated pavement and variable shoulders and ditches do not exhibit an orderly and aesthetically pleasing environment. The landscaped and grassed residential areas and mature trees lining the roadway provide a softer, pleasing view and enhance the quality of the view shed.

2. User/viewer Characteristics:

a. Identify and discuss the viewers who will have a view of the improved transportation facility:

Viewers of the improved facility include adjacent residents and employees and patrons of the abutting businesses, churches, and school.

b. Identify and discuss users of the transportation facility who will have a view from the facility:

Viewers from the improved facility include those commuting to and from work, school, and local businesses on a daily basis.

3. Effects:

a. Describe whether and how the project would affect the visual character of the landscape:

With the proposed improvements, there would be a slight widening of the roadbed throughout the project and widening at intersections for turn lane additions. This widening would require regrading of the ditches and removal of mature trees in wooded areas scattered throughout the project corridor. Within the reconstruction segments the project would add curb and gutter to reduce impacts to adjacent properties and features such as existing trees.

The proposed improvements would impact a substantial number of trees throughout the project corridor as a result of the grading required to flatten foreslopes and grade traversable ditches to improve the roadway safety clear zone. Many of the existing trees are too close to the road and present a safety hazard. Many of the trees are in the existing right of way and are not owned by the adjacent property owners even though they have the perception that these are their trees. Trees that would be removed from private property would be compensated for as part of the acquisition process by WisDOT, although past experience has shown that the intrinsic value of these trees is often much higher than the appraised and compensated value. The loss of trees will be appreciable in certain spot locations, but these impacts are generally on the edge of larger forested areas that will continue to dominate this rural Kettle Moraine landscape.

The visual character within the project corridor would largely remain the same with the proposed improvements. A majority of the roadway cross section would remain rural with shoulders and ditches.

The character of the areas that this project corridor travels through would be more substantially impacted by the nature of future development. It is the responsibility of the Village of Richfield and the Town of Polk to ensure that future development remains consistent with their approved land use plans. The land use plans for both of these communities call for continued agricultural land use, but also for some additional conversion of agricultural lands to low density residential land use. These land uses are consistent with the rural character that exists along WIS 164 today.

b. Indicate the effects the project would have on the viewer groups:

Both viewers of the facility and from the facility would notice the change in roadway geometry and addition of turn lanes at intersections throughout the project, the addition of curb and gutter in segments where the roadway is being cut down to reduce steep vertical slopes on the roadway, and tree removals throughout the project. These are important visual cues, especially for viewers from the facility, that roadway characteristics are changing and driver awareness is heightened.

4. Mitigation:

a. Have aesthetic commitments been made?

☒ No

☐ Yes - Discuss:

Factor Sheet C-1

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Describe Wetlands:

	Wetland 1		Wetland 2		Wetland 3		Wetland 4	
Name (If known)	W1		W2		W3		W4	
Location County	Washington		Washington		Washington		Washington	
Location (Section-Township-Range)	S33-T10N-R19E		S32-T10N-R19E		S33-T10N-R19E		S32-T10N-R19E	
Location Map	See Exhibit 7		See Exhibit 7		See Exhibit 7		See Exhibit 7	
Wetland Type(s)[1]	**RPF and RPE** Wet meadow/ - Atypical (mowed) wetland Shrub-carr (willow) Second growth, Southern wet- wet-mesic lowland hardwoods		**RPE** Shallow Marsh Wet meadow Shrub-carr (willow thicket		**RPE and RPF (D)** Wet meadow Shrub-carr (willow thicket) Second growth, Southern wet - wet-mesic lowland hardwoods		**RPE (D)** Atypical (farmed) wetland Wet meadow	
Total Wetland Loss	0.275 Acres		0.121 Acres		0.055 Acres		Acres 0.011	
Wetland is: (Check all that apply)[2]	Yes	No	Yes	No	Yes	No	Yes	No
• **Isolated from stream, lake or other surface water body**		X		X		X		X
• **Not contiguous (in contact with) a stream, lake, or other water body, but within 5-year floodplain**		X		X		X		X
• **If adjacent or contiguous, identify stream, lake or water body by Section-Township-Range**	Coney River		Coney River		Coney River		Coney River	

[1]Use wetland types as specified in the "WisDOT Wetland Mitigation Banking Technical Guideline, Table 3-C"
[2]If wetland is contiguous to a stream, complete Factor Sheet C-2, Rivers, Streams and Floodplains Impact Evaluation. If wetland is contiguous to a lake or other water body, complete Factor Sheet C-3, Lake or Water Body Impact Evaluation.

1. Describe Wetlands (continued):

	Wetland 5		Wetland 6		Wetland 7		Wetland 8	
Name (If known)	W5		W6		W7		W11	
Location County	Washington		Washington		Washington		Washington	
Location (Section-Township-Range)	S33-T10N-R19E		S32-T10N-R19E		S5-T9N-R19E		S8-T9N-R19E	
Location Map	See Exhibit 7		See Exhibit 7		See Exhibit 7		See Exhibit 7	
Wetland Type(s)[1]	**RPF and RPE** Shallow marsh Fresh (wet) meadow Second growth, Southern wet-wet-mesic lowland hardwoods		**RPF and RPE** Shallow marsh Fresh (wet) meadow Second growth, Southern wet-wet-mesic lowland hardwoods		**RPF and RPE** Shallow marsh Fresh (wet) meadow Second growth, Southern wet-wet-mesic lowland hardwoods		**M** Wet meadow	
Total Wetland Loss	0.257 Acres		0.174 Acres		0.012 Acres		0.062 Acres	
Wetland is: (Check all that apply)[2]	Yes	No	Yes	No	Yes	No	Yes	No
• **Isolated from stream, lake or other surface water body**		X		X	X		X	
• **Not contiguous (in contact with) a stream, lake, or other water body, but within 5-year floodplain**		X		X		X		X
• **If adjacent or contiguous, identify stream, lake or water body by Section-Township-Range**	Coney River		Coney River		N/A		N/A	

[1]Use wetland types as specified in the "WisDOT Wetland Mitigation Banking Technical Guideline, Table 3-C"

[2]If wetland is contiguous to a stream, complete Factor Sheet C-2, Rivers, Streams and Floodplains Impact Evaluation. If wetland is contiguous to a lake or other water body, complete Factor Sheet C-3, Lake or Water Body Impact Evaluation.

1. Describe Wetlands (continued):

	Wetland 9		Wetland 10		Wetland 11	
Name (If known)	W12		W13		W14	
Location County	Washington		Washington		Washington	
Location (Section-Township-Range)	S9-T9N-R19E		S8-T9N-R19E		S9-T9N-R19E	
Location Map	See Exhibit 7		See Exhibit 7		See Exhibit 7	
Wetland Type(s)[1]	**RPF and RPE (D)** Atypical (mowed) wetland Second growth, Southern wet- wet-mesic lowland hardwoods		**RPF and RPE** Wet meadow Second growth, Southern wet-wet-mesic lowland hardwoods **(ADID)**		**RPF and RPE** Wet meadow Second growth, Southern wet- wet-mesic lowland hardwoods **(ADID)**	
Total Wetland Loss	0.006 Acres		0.407 Acres		0.276 Acres	
Wetland is: (Check all that apply)[2]	Yes	No	Yes	No	Yes	No
• **Isolated from stream, lake or other surface water body**	X			X		X
• **Not contiguous (in contact with) a stream, lake, or other water body, but within 5-year floodplain**		X		X		X
• **If adjacent or contiguous, identify stream, lake or water body by Section-Township-Range**	N/A		Oconomowoc River		Oconomowoc River	

[1]Use wetland types as specified in the "WisDOT Wetland Mitigation Banking Technical Guideline, Table 3-C"
[2]If wetland is contiguous to a stream, complete Factor Sheet C-2, Rivers, Streams and Floodplains Impact Evaluation. If wetland is contiguous to a lake or other water body, complete Factor Sheet C-3, Lake or Water Body Impact Evaluation.

2. Are any impacted wetlands considered "wetlands of special status" per WisDOT Wetland Mitigation Banking Technical Guideline, page 10?

☐ No
☒ Yes:
  ☒ Advanced Identification Program (ADID) Wetlands
  ☐ Other – Describe: _____

3. Describe proposed work in the wetland(s), e.g., excavation, fill, marsh disposal, other:

The proposed roadway widening, reconstruction, intersection improvements, and pipe culvert replacements would require excavation and fill within wetland areas.

4. **List any observed or expected waterfowl and wildlife inhabiting or dependent upon the wetland:** (List should include both permanent, migratory and seasonal residents).

   Songbirds (brown wrens, cardinals, gold finches, robins, owls, etc.), small mammals, gray squirrels, chipmunks, opossums, woodchucks, raccoons, rabbits, foxes, as well as frogs, toads, snakes, etc.

5. **Federal Highway Administration (FHWA) Wetland Policy:**
   - ☐ Not Applicable - Explain

   - ☐ Individual Wetland Finding Required - Summarize why there are no practicable alternatives to the use of the wetland.

   - ☒ Statewide Wetland Finding: **NOTE: All three boxes below must be checked for the Statewide Wetland Finding to apply.**
     - ☒ Project is either a bridge replacement or other reconstruction within 0.3 mile of the existing location.
     - ☒ The project requires the use of 7.4 acres or less of wetlands.
     - ☒ The project has been coordinated with the DNR and there have been no significant concerns expressed over the proposed use of the wetlands.

6. **Erosion control or storm water management practices which will be used to protect the wetland are indicated on form: (Check all that apply)**
   - ☒ Factor Sheet D-6, Erosion Control Impact Evaluation.
   - ☒ Factor Sheet D-5, Stormwater Impact Evaluation.
   - ☐ Neither Factor Sheet - Briefly describe measures to be used

7. **U S Army Corps of Engineers (USACE) Jurisdiction - Section 404 Permit (Clean Water Act)**
   - ☐ Not Applicable - No fill to be placed in wetlands or wetlands are not under USACE jurisdiction.
   - ☒ Applicable - Fill will be placed in wetlands under the jurisdiction of the USACE.

     Indicate area of wetlands filled: 1.655 Acres

     Type of 404 permit anticipated:
     - ☐ Individual Section 404 Permit required.
     - ☒ General Permit (GP) or Letter Of Permission (LOP) required to satisfy Section 404 Compliance.

       Indicate which GP or LOP is required:
       - ☐ Non-Reporting GP
       - ☒ Provisional GP -- **Regional GP**
       - ☐ Provisional LOP
       - ☐ Programmatic GP

       Expiration date of 404 Permit, if known _____

8. **Section 10 Waters (Rivers and Harbors Act). For navigable waters of the United States (Section 10) indicate which 404 permit is required:**
   - ☒ No Section 10 Waters.

   Indicate whether Pre-Construction Notification (PCN) to the USACE is:
   - ☐ Not applicable.
   - ☐ Required: Submitted on: (Date)

   Status of PCN

   USACE has made the following determination on: (Date)

   USACE is in the process of review, anticipated date of determination is: (Date)

9. Wetland Avoidance and Impact Minimization: [Note: Required before compensation is acceptable]

A. Wetland Avoidance:

1. Describe methods used to avoid the use of wetlands, such as using a lower level of improvement or placing the roadway on new location, etc.:

   A reconstruction alternative would result in approximately the same width of roadway and grading limits as the reconditioning alternative and the impacts to the wetlands would remain approximately the same. Reconstruction on a new alignment would not be prudent due to added costs and environmental impacts so avoiding the impacts to wetlands is not feasible.

2. Indicate the total area of wetlands avoided:
   Acres: N/A

B. Minimize the amount of wetlands affected:

1. Describe methods used to minimize the use of wetlands, such as a steepening of side slopes or use of retaining walls, equalizer pipes, upland disposal of hydric soils, etc.:

   Due to site constraints, wetlands present on both sides of the roadway, and the need to provide a safe travel way, total wetland avoidance would not be feasible. Minimization efforts would include 3:1 side slopes outside the clear zone compared to the typical 4:1. Other minimization techniques would include excavating and disposing of marsh material in non-wetlands and maintaining natural drainage where feasible.

2. Indicate the total area of wetlands saved through minimization:
   Acres: 0.72

10. Compensation for Unavoidable Wetland Loss:

According to Section 401 (b) (1), of the Clean Water Act, unavoidable wetland losses must be mitigated on-site, if possible. If no on-site opportunities exist, near/off-site wetland compensation sites must be considered. If neither exists, the losses may be debited to an existing wetland mitigation bank site. Compensation ratios are based on WisDOT Wetland Mitigation Banking Technical Guideline.

	Type	Acre(s) Loss	Ratio	Compensation Type and Acreage			
				On-site	Near/off site	Consolidation Site	Bank site
RPF(N)	Riparian wetland (wooded)	0.209 0.257 **ADID**	1.5:1 2:1	---	---	0.314 0.514	---
RPF(D)	Degraded riparian wetland (wooded)	0.617 0.426 **ADID**	1.5:1 2:1	---	---	0.926 0.852	---
RPE(N)	Riparian wetland (emergent)	---	---	---	---	---	---
RPE(D)	Degraded riparian wetland (emergent)	0.084	1.5:1	---	---	0.126	---
M(N)	Wet and sedge meadows, wet prairie, vernal pools, fens	0.062	1.5:1	---	---	0.093	---
M(D)	Degraded meadow	---	---	---	---	---	---
SM	Shallow marsh	---	---	---	---	---	---
DM	Deep marsh	---	---	---	---	---	---
AB(N)	Aquatic bed	---	---	---	---	---	---
AB(D)	Degraded aquatic bed	---	---	---	---	---	---
SS	Shrub Swamp, shrub carr, alder thicket	---	---	---	---	---	---
WS(N)	Wooded swamp	---	---	---	---	---	---
WS(D)	Degraded wooded swamp	---	---	---	---	---	---
Bog	Open and forested bogs	---	---	---	---	---	---

D = Degraded
N = Non-degraded
*Impacts to wetlands and mitigation are currently being coordinated with WisDOT

11. If on-site compensation is proposed, describe how a search for a compensation site was conducted:

No on-site compensation is proposed.

12. Summarize the coordination with other agencies regarding the compensation for unavoidable wetland losses: Attach appropriate correspondence:

Coordination with the Corps of Engineers is ongoing.

Factor Sheet C-2

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Stream Name: Coney River

2. Stream Type: (Indicate Trout Stream Class, if known)
- ☐ Unknown
- ☒ Warm water
- ☐ Cold water
  If trout stream, identify trout stream classification: _____
- ☐ Wild and Scenic River

Per the WDNR, the Coney River is considered a cool (warm transition) headwater.

3. Size of Upstream Watershed Area: (Square miles or acres)
10.5 Square Miles

4 Stream flow characteristics:
- ☒ Permanent Flow (year-round)
- ☐ Temporary Flow (dry part of year)

5. Stream Characteristics:

A. Substrate:
   1. ☐ Sand
   2. ☒ Silt
   3. ☐ Clay
   4. ☐ Cobbles
   5. ☐ Other-describe:

B. Average Water Depth: 6”

C. Vegetation in Stream
   ☒ Absent
   ☐ Present - If known describe:

D. Identify Aquatic Species Present:
   Not available

E. If water quality data is available, include this information:
   Not available

F. Is this river or stream on the WDNR’s “Impaired Waters” list?
   ☒ No
   ☐ Yes - List: _____

6. If bridge or box culvert replacement, are migratory bird nests present?
- ☒ Not Applicable
- ☐ None identified
- ☐ Yes – Identify Bird Species present
  Estimated number of nests is: _

7. Is a Fish & Wildlife Depredation Permit required to remove swallow nests?

☒ Not Applicable
☐ Yes
☐ No - Describe mitigation measures:

8. Describe land adjacent to stream*:*

The land immediately adjacent to the stream near the project corridor is wetland with residential properties on the east side of WIS 164 to the north and south of the wetlands and stream and farm land on the west side of WIS 164 to the north of the wetlands and stream and residential property to the south of the wetlands and stream.

9. Identify upstream or downstream dischargers or receivers (if any) within 0.8 kilometers (1/2 mile) of the project site:

There are no dischargers or receivers near the project.

10. Describe proposed work in, over, or adjacent to stream. Indicate whether the work is within the 100-year floodplain and whether it is a crossing or a longitudinal encroachment: [Note: Coast Guard must be notified when Section 10 waters are affected by a proposal. Also see Wetland Evaluation, Factor Sheet C-1, Question 8.]

The work over the adjacent stream would include resurfacing of the roadway. 7 foot by 5 foot pipe arch culvert would remain in place. Beam guard would be utilized to shield the steep shoulder slopes at the culvert pipe.

11. Discuss the effects of any backwater which would be created by the proposed action. Indicate whether the proposed activities would be in compliance with NR 116 by creating 0.01 ft. backwater or less:

No additional backwater would be anticipated to be created by the proposed construction actions. The proposed activities
would be in compliance with NR 116.

12. Describe and provide the results of coordination with any floodplain zoning authority:

Not required as there is no anticipated change in upstream water surface elevations.

13. Would the proposal or any changes in the design flood, or backwater cause any of the following impacts?

☒ No impacts would occur.
☐ Significant interruption or termination of emergency vehicle service or a community's only evacuation route.
☐ Significant flooding with a potential for property loss and a hazard to life.
☐ Significant impacts on natural floodplain values such as flood storage, fish or wildlife habitat, open space, aesthetics, etc.

14. Discuss existing or planned floodplain use and briefly summarize the project's effects on that use:

The existing floodplain is primarily wetland and open space. The proposed action would not be expected to impact the current use of the floodplain.

15. Discuss probable direct impacts to water quality within the floodplain, both during and after construction. Include the probable effects on plants, animals, and fish inhabiting or dependent upon the stream:

Because of the erosion control measures that would be utilized during and after the construction minimal to no impacts would be expected to water quality within the floodplain or plant, animals, and fish inhabiting this water way. Also, no in-stream work would be allowed to occur between May 1 and June 30 per DNR requirements.

16. Are measures proposed to enhance beneficial effects?

☒ No
☐ Yes. Describe: _____

Factor Sheet C-2

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Stream Name: Oconomowoc River

2. Stream Type: (Indicate Trout Stream Class, if known)
- ☐ Unknown
- ☒ Warm water
- ☐ Cold water
  If trout stream, identify trout stream classification: _____
- ☐ Wild and Scenic River

Per the WDNR, the Oconomowoc River is considered a cool (warm transition) headwater.

3. Size of Upstream Watershed Area: (Square miles or acres)
12 Square Miles

4 Stream flow characteristics:
- ☒ Permanent Flow (year-round)
- ☐ Temporary Flow (dry part of year)

5. Stream Characteristics:

A. Substrate:
   1. ☒ Sand
   2. ☐ Silt
   3. ☐ Clay
   4. ☒ Cobbles
   5. ☐ Other-describe:

B. Average Water Depth: 6”

C. Vegetation in Stream
   ☒ Absent
   ☐ Present - If known describe:

D. Identify Aquatic Species Present:
   Not available

E. If water quality data is available, include this information:
   Not available

F. Is this river or stream on the WDNR’s “Impaired Waters” list?
   ☒ No
   ☐ Yes - List: _____

6. If bridge or box culvert replacement, are migratory bird nests present?
- ☒ Not Applicable
- ☐ None identified
- ☐ Yes – Identify Bird Species present
  Estimated number of nests is:

7. Is a Fish & Wildlife Depredation Permit required to remove swallow nests?

☒ Not Applicable
☐ Yes
☐ No - Describe mitigation measures:

8. Describe land adjacent to stream*:*

The land immediately adjacent to the stream near the project corridor is wetland with residential properties on the east side of WIS 164 to the north and south of the wetlands and stream and farm land on the west side of WIS 164 to the north and south of the wetlands and stream.

9. Identify upstream or downstream dischargers or receivers (if any) within 0.8 kilometers (1/2 mile) of the project site:

There are no dischargers or receivers near the project.

10. Describe proposed work in, over, or adjacent to stream. Indicate whether the work is within the 100-year floodplain and whether it is a crossing or a longitudinal encroachment: [Note: Coast Guard must be notified when Section 10 waters are affected by a proposal. Also see Wetland Evaluation, Factor Sheet C-1, Question 8.]

The work over the adjacent stream would include resurfacing of the roadway. The existing dual 13 foot by 9 foot pipe arch culvert would remain in place. Beam guard would be utilized to shield the steep shoulder slopes at the culvert pipe.

11. Discuss the effects of any backwater which would be created by the proposed action. Indicate whether the proposed activities would be in compliance with NR 116 by creating 0.01 ft. backwater or less:

No additional backwater would be anticipated to be created by the proposed construction actions. The proposed activities would be in compliance with NR 116.

12. Describe and provide the results of coordination with any floodplain zoning authority:

Not required as there is no change in upstream water surface elevations.

13. Would the proposal or any changes in the design flood, or backwater cause any of the following impacts?

☒ No impacts would occur.
☐ Significant interruption or termination of emergency vehicle service or a community's only evacuation route.
☐ Significant flooding with a potential for property loss and a hazard to life.
☐ Significant impacts on natural floodplain values such as flood storage, fish or wildlife habitat, open space, aesthetics, etc.

14. Discuss existing or planned floodplain use and briefly summarize the project's effects on that use:

The existing floodplain is primarily wetland and open space. The proposed action would not be expected to impact the current use of the floodplain.

15. Discuss probable direct impacts to water quality within the floodplain, both during and after construction. Include the probable effects on plants, animals, and fish inhabiting or dependent upon the stream:

Because of the erosion control measures that would be utilized during and after the construction minimal to no impacts would be expected to water quality within the floodplain or plant, animals, and fish inhabiting this water way. Also, no in-stream work would be allowed to occur between May 1 and June 30 per DNR requirements.

16. Are measures proposed to enhance beneficial effects?

☒ No
☐ Yes. Describe: _____

Factor Sheet C-7

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Are there any known threatened or endangered species in the vicinity of the project?

☐ None identified

☒ Yes - Identify the species and indicate its status on Federal or State lists:

Species Common Name	Species Scientific Name	Federal Status	State Status	Affected by Project? Y/N
Plants				
Kitten Tails	Besseya bullii	N/A	Threatened	To be determined
Animals				
Butler's Garter Snake	Thamnophis butleri	N/A	Threatened	Y
Slender Madtom (fish)	Noturus exellis	N/A	Endangered	N

3. **Explain How a Species Is or Is Not Affected by the Action:**

☒ Species Not Affected:

Slender Madtom – No impact expected as there is no in-stream work at the Oconomowoc River or Coney River.

☒ Species Affected:

Kitten Tails - Kitten tails have been found in close proximity to the road corridor and there is a chance they may be found in areas proposed for impact, especially those adjacent to woodlots as kitten tails are a found in small woodland openings. DNR staff will survey for kitten tails during the summer to determine presence or absence. If kitten tails are present they may be transplanted prior to construction to avoid take.

Butler's Garter Snake – Fencing would be utilized adjacent to habitat areas during construction to prevent impact to the Butler's Garter Snake if still listed as a Threatened species at the time of construction.

4. Describe Coordination:

U.S. Fish & Wildlife Service:

☐ Has Section 7 coordination been completed?

☒ No – **No Federally listed endangered species are affected**.

☐ Yes - Describe mitigation required to protect the federally listed endangered species:

WDNR

☐ Has coordination with DNR been completed?

☐ No

☒ Yes - Describe mitigation required to protect the state-listed species:

Kitten Tails - Kitten tails have been found in close proximity to the road corridor and there is a chance they may be found in areas proposed for impact, especially those adjacent to woodlots as kitten tails are a found in small woodland openings. DNR staff will survey for kitten tails during the summer to determine presence or absence. If kitten tails are present they may be transplanted prior to construction to avoid take.

Factor Sheet D-2

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Identify and describe residences, schools, libraries, or other noise sensitive areas near the proposed action and which will be in use during construction of the proposed action. Include the number of persons potentially affected:

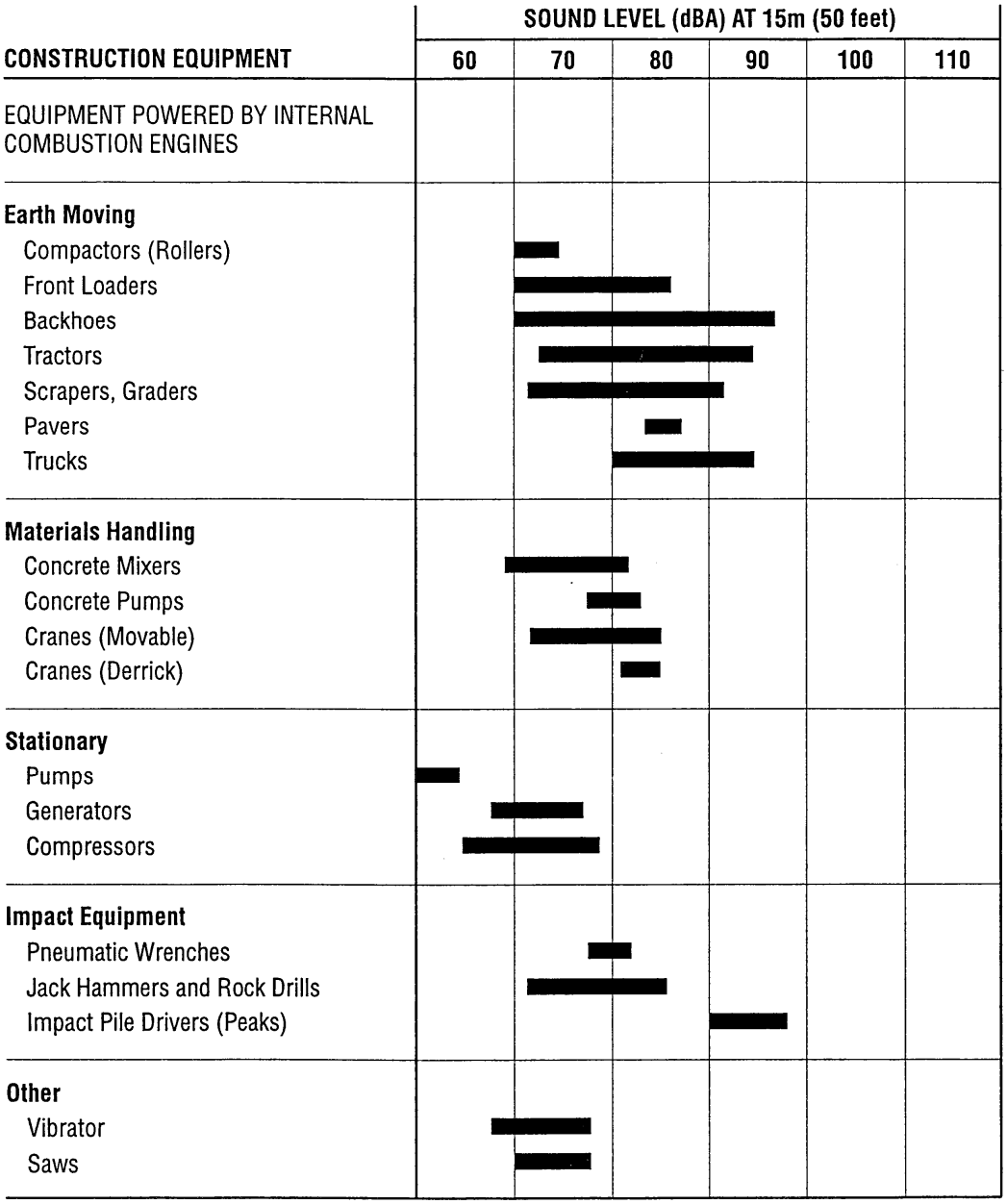
A school, two churches, and single family residences are considered to be noise sensitive areas within the project's area of effect. The estimated number of persons potentially affected by construction noise is approximately 400 - 450.

2. Describe the types of construction equipment to be used on the project. Discuss the expected severity of noise levels including the frequency and duration of any anticipated high noise levels:

The noise generated by construction equipment would vary greatly, depending on equipment type/model/make, duration of operation and specific type of work effort. However, typical noise levels may occur in the 67 to 107 dBA range at a distance of 50 feet.

3. Describe the construction stage noise abatement measures to minimize identified adverse noise effects. Check all that apply:

- ☒ WisDOT Standard Specifications 107.8(6) and 108.7.1 will apply.
- ☐ WisDOT Standard Specifications 107.8(6) and 108.7.1 will apply with the exception that the hours of operation requiring the engineer's written approval for operations will be changed to _____ P.M. until _____A.M.
- ☐ WisDOT Standard Specifications 107.8(6) and 108.7.1 will apply with the exception that the hours of operation requiring the engineer's written approval for operations will be changed to _____ P.M. until _____A.M.
- ☐ Special construction stage noise abatement measures will be required. Describe:



Construction Equipment Sound Levels

Source: U.S. Report to the President and Congress on Noise, February, 1972

Factor Sheet D-4

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Briefly describe the results of the Phase 1 Hazardous Materials Assessment for this alternative. Do not use property identifiers (owner name, address or business name):

Site Reference #	Land Use of Concern (Past or Present)	Contaminants of Concern	Phase 1 Recommendations	Phase 2 Recommended? Y/N
1	Residential	Petroleum	No further investigation	N
2	Residential/Agricultural	Petroleum	No further investigation	N
3	Residential/Agricultural	Petroleum	No further investigation	N
4	Fire Department	Petroleum	No further investigation	N
5	Residential/Agricultural	Petroleum	No further investigation	N
6	Residential	Petroleum	No further investigation	N
7	Residential	Petroleum	No further investigation	N
8	Residential/Agricultural	Petroleum	No further investigation	N
9	Residential	Petroleum	No further investigation	N
10	Agricultural	Petroleum	No further investigation	N
11	Residential	Petroleum	No further investigation	N
12	Residential/Agricultural	Petroleum	No further investigation	N
13	Residential	Petroleum	No further investigation	N
14	Residential/Agricultural	Petroleum	No further investigation	N
15	Residential	Petroleum	No further investigation	N

Attach additional sheets, if necessary
Additional comments: _____

2. Were any parcels not included in the Phase 1 assessment?

☒ No
☐ Yes - How many:
Why were they not reviewed?

3. Have Phase 2 or 2.5 Assessments been completed? Discuss the results:

Site Reference #	Phase 2/2.5 Recommendations	Remediation Recommended?		Is WisDOT a Responsible Party?	
		Yes	No	Yes	No

No Phase 2 or 2.5 Assessments were recommended to be completed.

4. Describe the results of any additional investigations performed by WisDOT or others: (Include the number of sites investigated, the level of investigation and results for each site)

Hazardous material investigations have not been completed for the structures proposed for demolition. These investigations will be completed by WisDOT SE Region prior to PS&E for the demolition contract.

No additional investigations have been performed at this time.

5. Describe proposed action to avoid hazardous materials contamination:

Due to the nature of the proposed improvements, resurfacing an rural highway with spot geometric and intersection improvements, it may not be possible to avoid potential contamination sites if they are discovered during construction.

6. Describe the remediation and waste management practices to be included in the design for areas where contamination cannot be avoided (e.g., waste handling plan, remediation of contamination, design changes to minimize disturbances):

Contract special provisions would address any unresolved contaminated areas.

7. List any parcels with known contamination, proposed for acquisition:

No parcels with known contamination are proposed for acquisition.

8. Bridge Projects Only: Has the structure been inspected for the presence of asbestos containing materials (ACMs)? *N/A*

☐ No - Explain

☐ Yes:

Were regulated ACMs identified?

☐ No

☐ Yes:

State the standard language to be incorporated in the special provisions of the project:

Factor Sheet D-5

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Indicate whether the affected area may cause a discharge or will discharge to the waters of the state (Trans 401.03).

Special consideration should be given to areas that are sensitive to water quality degradation. Provide specific recommendations on the level of protection needed.

☐ No water special natural resources are affected by the alternative.
☒ Yes - Water special natural resources exist in the project area.
- ☒ River/stream (Oconomowoc River and Coney River)
- ☒ Wetland
- ☐ Lake
- ☐ Endangered species habitat
- ☐ Other – Describe

_____

During construction, erosion control strategies would include measures to minimize soil erosion such as seeding exposed slopes, silt fences, erosion bales, erosion mats, and inlet protection. These measures would provide protection for existing wetland and stream areas. In addition, storm water management techniques would include discharging runoff water into flat, grass-lined ditches and swales to slow the water and settle out contaminants before entering adjacent wetlands and streams. A Statewide Wetland Finding has been coordinated with DNR and found to be applicable for the wetlands within the project limits.

2. Indicate whether circumstances exist in the project vicinity that require additional or special consideration, such as an increase in peak flow, total suspended solids (TSS) or water volume.

☒ No additional or special circumstances are present.
☐ Yes - Additional or special circumstances exist. Indicate all that are present.

☐ Areas of groundwater discharge	☐ Areas of groundwater recharge
☐ Stream relocations	☐ Overland flow/runoff
☐ Long or steep cut or fill slopes	☐ High velocity flows
☐ Cold water stream	☐ Impaired waterway
☐ Large quantity flows	☐ Exceptional/outstanding resource waters
☐ Increased backwater	

☐ Other - Describe any unique, innovative, or atypical stormwater management measures to be used to manage additional or special circumstances. _____

3. Describe the overall stormwater management strategy to minimize adverse effects and enhance beneficial effects.

Proposed ditches would be located as close to the roadway as practicable and made traversable to meet clear zone requirements. Ditch depths would be kept at or near the required minimum values to reduce grading impacts to adjacent properties. Ditch slopes, ditch checks, and discharge points would be designed as necessary to slowly release water to minimize the potential for erosion.

4. Indicate how the storm water management plan will be compatible with fulfilling Trans 401 requirements.

Storm water management would be carried out in accordance with TRANS 401-Construction Site Erosion Control and Storm Water Management Procedures. A combination of ditches with flatter side slopes, ditches with reduced longitudinal slope, flat bottom ditches, and permanent ditch checks would ensure pre-construction and post-construction runoff volumes to be the same, or would minimize increases in storm water runoff after construction to the extent practical.

5. Identify the stormwater management measures to be utilized.

- ☒ Swale treatment (parallel to flow) Trans 401.106(10)
- ☐ Vegetated filter strips (perpendicular to flow)
- ☐ Constructed storm water wetlands
- ☐ Buffer areas – Trans 401.106(6)
  Describe - _____
- ☐ In-line storm sewer treatment, such as catch basins, non-mechanical treatment systems.
- ☒ Detention/retention basins – Trans 401.106(6)(3)
- ☐ Distancing outfalls from waterway edge
- ☐ Infiltration – Trans 401.106(5)
- ☐ Other
  _____

6. Indicate whether any Drainage District may be affected by the project.

- ☒ No - None identified
- ☐ Yes
  Has initial coordination with a drainage board been completed?
  - ☐ No - Explain
  - ☐ Yes - Discuss results _____

7. Indicate whether the project is within WisDOT's Phase I or Phase II stormwater management areas.

Note: See Procedure 20-30-1, Figure 1, Attachment A4, the Cooperative Agreement between WisDOT and WisDNR. Contact Regional Stormwater/erosion Control Engineer if assistance in needed to complete the following:

- ☒ No - the project is outside of WisDOT's stormwater management area.
- ☐ Yes - The project affects one of the following and is regulated by a WPDES stormwater discharge permit, issued by the WisDNR:
  - ☐ A WisDOT storm sewer system, located within a municipality with a population greater than 100,000.
  - ☐ A WisDOT storm sewer system located within the area of a notified owner of a municipal separate storm sewer system.
  - ☐ An urbanized area, as defined by the U.S. Census Bureau, NR216.02(3).
  - ☐ A municipal separate storm sewer system serving a population less than 10,000.

8. Has the effect on downstream properties been considered?

- ☐ No
- ☒ Yes - Coordination is in process.

9. Are there any property acquisitions required for storm water management purposes?

- ☐ No
- ☒ Yes - Complete the following:
  - ☒ Safety measures, such as fencing are <u>not</u> needed for potential conflicts with existing and expected surrounding land use.
  - ☐ Safety measures <u>are</u> needed for potential conflicts with existing and expected surrounding land use.

  Describe:

Factor Sheet D-6

Alternative Reconditioning with Spot Safety and Geometric Improvements	Total Length of Center Line of Existing Roadway : 7.494 Length of This Alternative: 7.494
Preferred ☒ Yes ☐ No ☐ None Identified	

1. Give a brief description of existing and proposed slopes in the project area, both perpendicular and longitudinal to the project. Include both existing and proposed slope length, percent slope and soil types.

Existing Slopes - Longitudinal slopes are gently rolling ranging from flat to 8 percent. Perpendicular slopes are generally in the 25 to 33 percent range in the ditches. Perpendicular slopes beyond the ditches range from 2 percent to 33 percent (3:1) with some sections in cuts that are up to 2.5:1 slopes.

Proposed Slopes - Longitudinal slopes would remain gently rolling with reduction of slope to 5% at four spot locations within the project corridor. Perpendicular slopes on the pavement and shoulders would generally vary from 2 percent to 4 percent. Perpendicular slopes beyond the edge of shoulder would be flattened to 25 percent (4:1) or flatter within the clear zone and typically would not be steeper than 33 percent (3:1). In locations where longitudinal grades would be reduced resulting in large cuts, side slopes outside of the clear zone would be 2.5:1. Cuts greater than 25 feet would be benched to minimize erosion.

Soil Types – Casco, Fox, and Theresa soils are the predominant soil types encountered on the project. Casco soils consist of shallow clay over sand and gravel. Fox soils consist of clay over deep sand and gravel. Theresa soils consist of silt over highly calcareous loam till.

2. **Indicate all natural resources to be affected by the proposal that are sensitive to erosion, sedimentation, or waters of the state quality degradation and provide specific recommendations on the level of protection needed.**
   - ☐ No - there are no sensitive resources affected by the proposal.
   - ☒ Yes - Sensitive resources exist in or adjacent to the area affected by the project.
     - ☒ River/stream
     - ☐ Lake
     - ☒ Wetland
     - ☐ Endangered species habitat
     - ☐ Other - Describe _____

3. Are there circumstances requiring additional or special consideration?
   - ☐ No - Additional or special circumstances are not present.
   - ☒ Yes - Additional or special circumstances exist. Indicate all that are present.
     - ☐ Areas of groundwater discharge
     - ☐ Overland flow/runoff
     - ☒ Long or steep cut or fill slopes **– Long, steep cut slopes at the hill on WIS 164 north of Monches Road would be benched and temporary settling basins utilized to minimize erosion.**
     - ☐ Areas of groundwater recharge (fractured bedrock, wetlands, streams)
     - ☐ Other - Describe any unique or atypical erosion control measures to be used to manage additional or special circumstances_____

4. Describe overall erosion control strategy to minimize adverse effects and/or enhance beneficial effects.

The erosion control plan would include the appropriate items, per construction area, to protect the soil from washing into the adjacent wetland and stream areas during construction. The erosion control measures would minimize the amount of land exposed per stage, use temporary seeding and silt fence early on to protect working areas, use ditch checks and erosion mat on the steeper slopes, turbidity barrier along stream crossings, storm water runoff would be

directed along the existing vegetative swales as practical, rip rap would be used at the ends of culvert pipes and would provide for permanent restoration of disturbed areas when each stage is complete.

Erosion control measures would be implemented according to the requirements outlined in the WisDOT Facilities Development Manual. The contractor would be responsible for developing an ECIP prior to construction.

5. Erosion control measures reached consensus with the appropriate authorities as indicated below:

- ☒ WisDNR
- ☐ County Land Conservation Department
- ☐ American Indian Tribe
- ☐ US Army Corps of Engineers

The Erosion Control Plan would be coordinated through the WisDOT-WisDNR liaison process and TRANS 401 during the final design phase of the project. The contractor would be required to prepare an Erosion Control Implementation Plan (ECIP), which identifies timing and staging of the project's erosion control measures. The ECIP would be submitted to the WisDNR and to WisDOT 14 days prior to the preconstruction conference per TRANS 401.08(1) and must be approved by WisDOT before implementation.

6. **Identify the temporary and permanent erosion control measures to be utilized on the project. Consult the FDM, Chapter 10, and the Products Acceptability List (PAL).**

- ☒ Minimize the amount of land exposed at one time
- ☒ Temporary seeding
- ☒ Silt fence
- ☒ Ditch checks
- ☒ Erosion or turf reinforcement mat
- ☒ Ditch or slope sodding
- ☐ Soil stabilizer
- ☒ Inlet protection
- ☒ Turbidity barriers
- ☒ Temporary settling basin
- ☒ Mulching
- ☐ Other - Describe _____
- ☒ Detention basin
- ☒ Vegetative swales
- ☐ Pave haul roads
- ☒ Dust abatement
- ☒ Rip rap
- ☐ Buffer strips
- ☐ Dewatering – Describe method
- ☐ Silt screen
- ☐ Temporary diversion channel
- ☒ Permanent seeding

Project I.D. 2709-03-00
Lovers Lane
County Q to County E
WIS 164
Washington County

ENVIRONMENTAL REPORT EXHIBITS

1. Project Location Map
2. Project Overview
3. Existing and Proposed Typical Sections
4. Shady Lane Alternatives
5. WIS 167 Alternatives
6. Pleasant Hill Road Alternatives
7. Preliminary Plan View Layouts
8. Village of Richfield and Town of Polk Land Use Plans
9. Highway J Citizens Group and Waukesha County Environmental Action League Correspondence
10. Bureau of Aeronautics Correspondence
11. Conceptual Stage Relocation Plan
12. Department of Agriculture, Trade & Consumer Protection Correspondence, U.S. Department of Agriculture Farmland Conversion Impact Rating Sheet, and Agricultural Impact Notice
13. Wisconsin Department of Natural Resources Correspondence
14. State Historic Preservation Office Section 106 Documentation
15. U.S. Army Corps of Engineers Correspondence
16. US Fish and Wildlife Service Correspondence
17. Native American Tribes Correspondence
18. Impact to Section 4(f) Property Correspondence

No changes were made to the report exhibits for the Final ER. Refer to the exhibits in the Draft ER.

This ends the Revised Basic Sheets and Factor Sheets.

Attachment 5
Indirect Effects Analysis Pre-screening Worksheet

APPENDIX A: WisDOT's Pre-Screening Worksheet for EA and ER Projects For Determining the Need to Conduct a *Detailed* Indirect Effects Analysis

Prepared by Environmental Documents Section
Bureau of Technical Services
Division of Transportation System Development
Wisconsin Department of Transportation

NEPA requires the assessment of indirect effects of all projects under CEQ regulations. **All EIS documents require a detailed indirect effects analysis.** However, not all, non-EIS environmental reviews for transportation projects will warrant a *detailed analysis* of indirect effects. This pre-screening guidance will assist the Study Team in determining whether a more detailed analysis is necessary in order to comply with NEPA requirements. Refer to the complete indirect effects analysis guidance document and FDM (chapter 25-5-17) for further information.

This prescreening worksheet may be helpful in scoping for the analysis. If the Study Team is uncertain what level of analysis the project will need, do not make an assumption that the project doesn't require the analysis. Contact the Region Environmental Coordinator for more assistance.

The factors listed below are not in any order of importance. Each EA and ER project needs to be examined individually to understand whether a particular factor or combination factors requires detailed analysis for indirect effects.

Factors to Consider

1. Project Design Concepts and Scope
2. Project Purpose and Need
3. Project Type (Categorical Exclusions, etc.)
4. Facility Function (Current and Planned—principal arterial, rural arterial, etc.)
5. Project Location
6. Improved Travel Times to an Area
7. Local Land Use and Planning Considerations
8. Population and Demographic Considerations
9. Rate of Urbanization
10. Public Concerns

1. Project Design Concepts and Scope

Do the project design concepts include any one of the following?

- Additional thru travel lanes (expansion) **No**
- New alignment
  Approximate 30' horizontal centerline shift to the west at the WIS 164/Pleasant Hill Road intersection; total length of realignment = 2,800' including tapers.
- New and/or improved interchanges and access **No**
- Bypass alternatives **No**

2. Project Purpose and Need

Does the project purpose and need include:

- Economic development –in part or full (i.e. improved access to a planned industrial park, new interchange for a new warehouse operation). **No**

3. **Project Type**
   What is the project document "type"?
   - EIS project—a detailed indirect effects analysis is warranted.
   - Many EAs will require a detailed indirect effects analysis however, it also depends on the project design concepts and other factors noted here.
   - If a Categorical Exclusion applies, a detailed assessment is not generally warranted, however documentation must be provided that addresses this determination including basic sheet information. **This document will be an Environmental Report (ER).**

4. **Facility Function**
   What is the primary function of the existing facility? What is the proposed facility?
   - Urban arterial **No**
   - Rural arterial **Yes, Existing and Proposed**

5. **Project Location (Location can be a combination.)**
   - Urban (within an Metropolitan Planning Area) **No**
   - Suburban (part of larger metropolitan/regional area, may or may not be part of an metropolitan planning area) **Yes. The project is located within the Southeastern Wisconsin Regional Planning Commission (SEWRPC) metropolitan planning area. SEWRPC is a regional planning commission and a metropolitan planning organization.**
   - Small community (population under 5000) **No**
   - Rural with scattered development **Yes**
   - Rural, primarily farming/agricultural area **Yes**

6. **Improved travel times to an area or region**
   - Will the proposed project provide an improvement of 5 or more minutes? (Based on research, improvements in travel time can impact the attractiveness of an area for new development.) **Proposed travel times are expected to improve at the intersection of WIS 164 and WIS 167, but average travel times through the project length are not anticipated to reduce by more than 5 minutes. Proposed average travel times in the corridor are projected to improve initially after construction (<5 minutes). Travel times are anticipated to gradually increase in future years as traffic in the corridor is projected to increase.**

7. **Land Use and Planning**
   - What are the existing land use types in project area? **The land use in the project area is predominantly low density residential and agricultural with limited commercial and institutional development.**
   - What do the local plans, neighborhood plans, and regional plans, indicate for future changes in land use? Same as existing.
   - What types of permitted uses are indicated in the local zoning? **Mostly low density residential and agricultural with limited commercial and institutional uses.**
   - Would the project potentially conflict with plans in the project area? (e.g., capacity expansion in areas in which agricultural preservation is important to local government(s)?) **No, proposed action is consistent with local land use plans.**

8. Population/Demographic Changes

- Have the population changes over past 5, 10 and 20 years been high, medium, low growth rate vs. state average over same period? (i.e. USDA defines high growth in rural areas as greater than annual population growth of 1.4 %.) Population changes in the **Village of Richfield and Town of Polk have been low (<1% annual growth) per data obtained from the USDA.**
- What are the projections for the future for population? (Use Wisconsin DOA projections.) **Populations for the Village of Richfield and the Town of Polk are projected to remain <1% annually thru year 2040 per Wisconsin Department of Administration projections.**
- Have there been considerable changes for population demographics and employment over the past 10 – 20 or more years? **No**

9. Rate of Urbanization

- Does the project study area contain proposed new developments? **There are no known developments proposed in the project area.**
- What are the main changes in developed area vs. undeveloped areas over past 5, 10 and 20 years? **Aerial photos from 1970 to 2010 were reviewed. Low density residential and institutional developments have replaced some agricultural land uses along the project corridor.**
- Have there been significant conversions of agricultural land uses to other land use types, such as residential or industrial? **There has been conversion of agricultural land to residential and institutional use consistent with local land use plans, therefore this conversion is not considered significant.**

10. Public, State and/or Federal Agency Concerns

- Have local officials, federal and/or state agencies, property owners, stakeholders or others raised concerns related to potential indirect effects from the project? (e.g., land use changes, "sprawl", increase traffic, loss of farmland, etc.) **There has been some public opposition to the project due to the loss of agricultural land and wetlands that would result. The concerns raised are primarily related to the direct effect of the loss of agricultural lands as opposed to indirect effects such as the degradation of the overall farming operation or future viability of farming in the area. State and Federal review agencies were given an opportunity to comment on the project and the loss of agricultural lands as a result of this project was not raised as a concern. Most notably the Department of Agriculture, Trade and Consumer Protection (DATCP), did not express concerns with this project and did not prepare an Agricultural Impact Statement (AIS).**

11. Conclusion

Identify whether or not the results of this prescreening of potential indirect effects indicates a detailed indirect effects analysis is required.

a. ☒ No – Through screening analysis using WisDOT's pre-screening for indirect effects procedure and FDM guidance on indirect effects, it is concluded that the factors of the project, its location and other conditions do not warrant further detailed analysis of the potential for indirect effects. The project will not have the likelihood to result in *significant* indirect effects as defined by NEPA. This conclusion was based on the evaluation of the preceding 10 pre-screening factors including project design concepts and scope; project purpose and need; project type; facility function (current and planned); project location; improved travel times to an area; local land use and planning considerations; population and demographic considerations; rate of urbanization; and public/agency concerns. Therefore, further evaluation of indirect effects in a detailed analysis is not warranted. If changes are

made to the project design and alternatives, this screening will be re-examined for sufficiency.

b. ☐ Yes – Through screening analysis using WisDOT's pre-screening for indirect effects procedure and FDM guidance on indirect effects, it is concluded that the factors of the project, its location and other conditions warrant further detailed analysis of the potential for indirect effects.

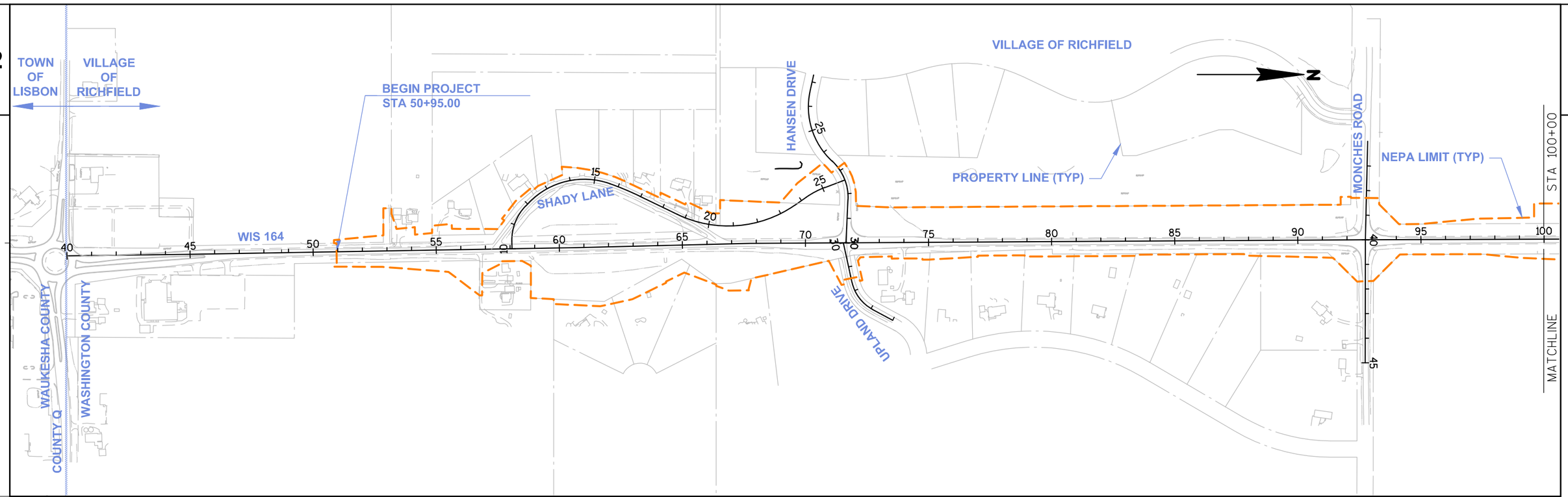
Documenting Prescreening

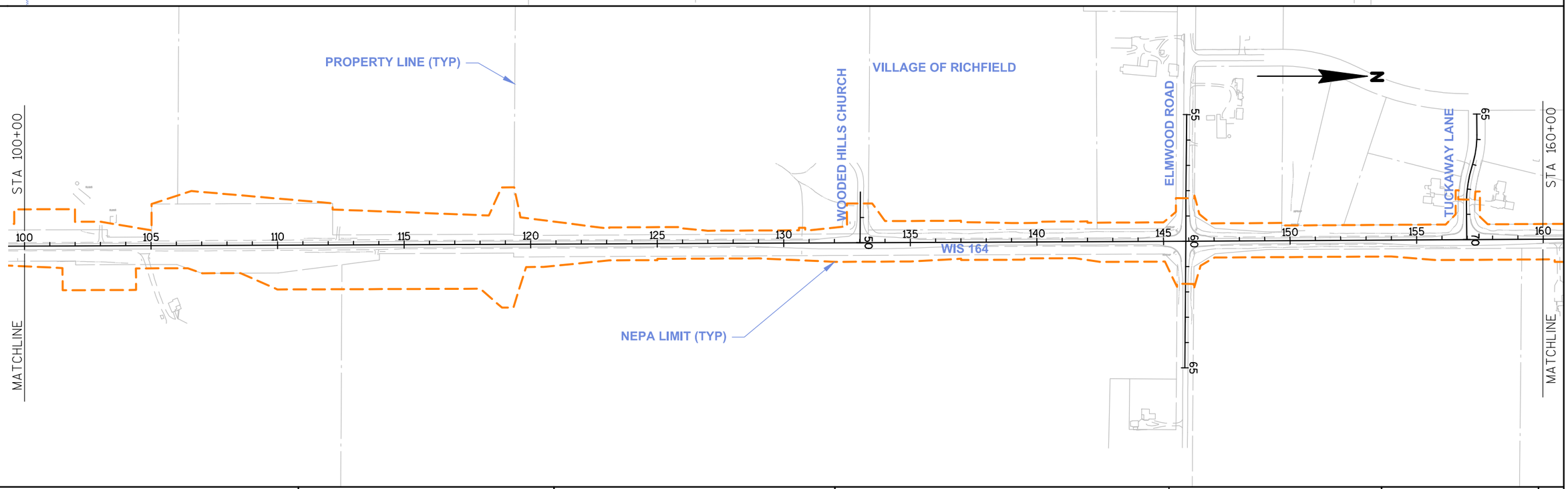
The results of prescreening require documentation both in the project file and within the document itself. In the documentation, it is important to include various data sources used and summarize the rationale for determining level of analysis required.

Some projects, especially EAs may need additional analysis, but will not reach the level required in an EIS project. The analysis should be catered to the level of project indirect impacts anticipated.

If the Study Team is uncertain what level of analysis the project will need or if the results of the screening are appropriate, the Study Team should not make an assumption. Contact the region environmental coordinator for more assistance.

Attachment 6
NEPA Limits Exhibits





PROJECT NO: 2709-03-70	HWY: WIS 164	COUNTY: WASHINGTON	NEPA LIMITS	SCALE : NTS	SHEET	E

2

STA 160+00

MATCHLINE

NEPA LIMIT (TYP)

VILLAGE OF RICHFIELD

PROPERTY LINE (TYP)

HUBERTUS ROAD

STA 220+00

MATCHLINE

2

N

160 165 170 175 180 185 190 195 200 205 210 215 220

80 90 95 100 105 110 115

CHEROKEE TRAIL

WIS 164

ST GABRIEL LANE

STA 220+00

MATCHLINE

LOCHVIEW DRIVE

ADA HI COURT

GOLDEN DRIVE

VILLAGE OF RICHFIELD

PROPERTY LINE (TYP)

WIS 167

OCONOMOWOC RIVER

STA 280+00

MATCHLINE

N

220 225 230 235 240 245 250 255 260 265 270 275 280

125 130 135 140 145 150 155 160 165 170 175 180

WETLAND 10

WIS 164

WETLAND 11

NEPA LIMIT (TYP)

C-66-113
TO REMAIN

PROJECT NO: 2709-03-70	HWY: WIS 164	COUNTY: WASHINGTON	NEPA LIMITS	SCALE : NTS	SHEET	E

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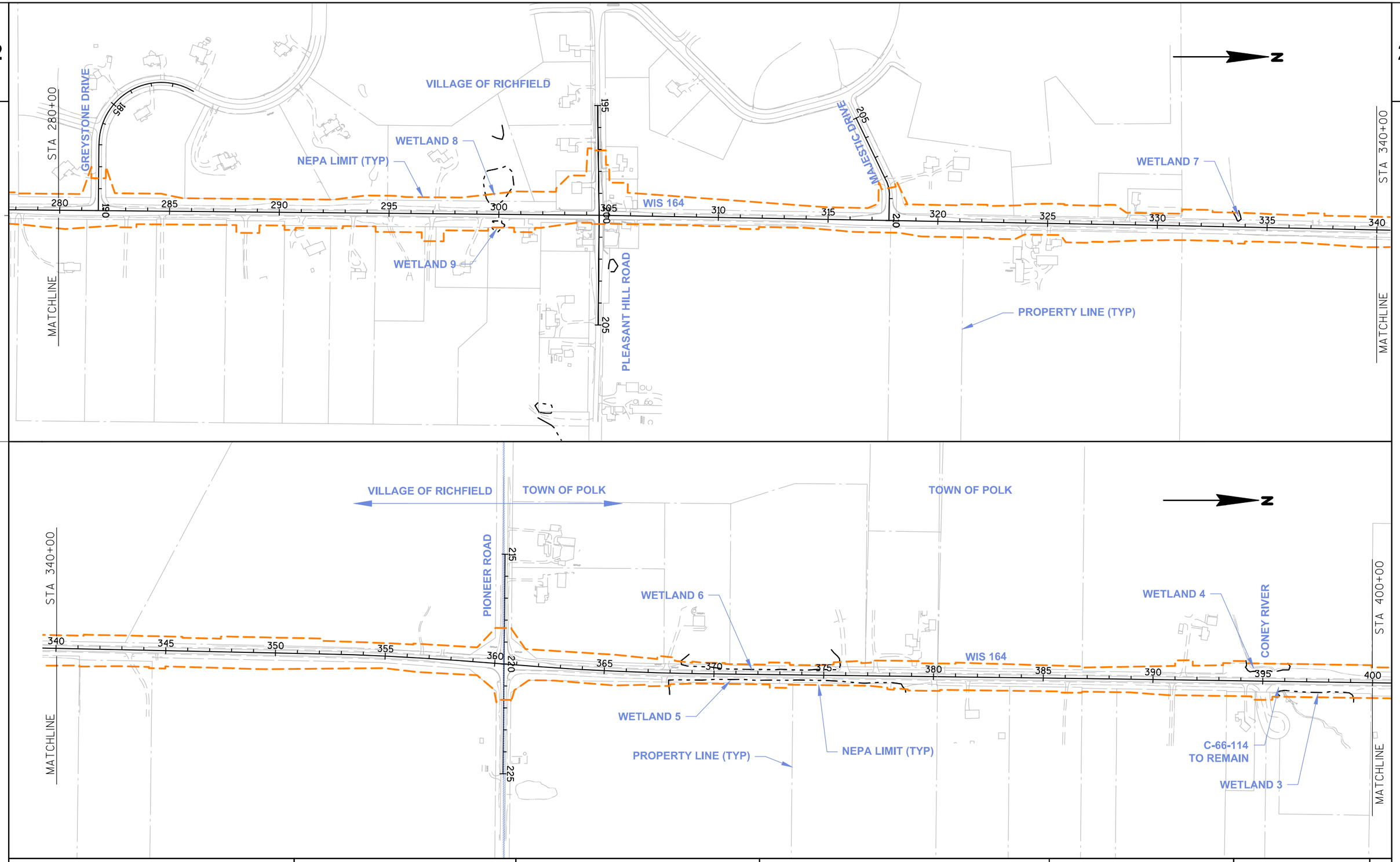
2



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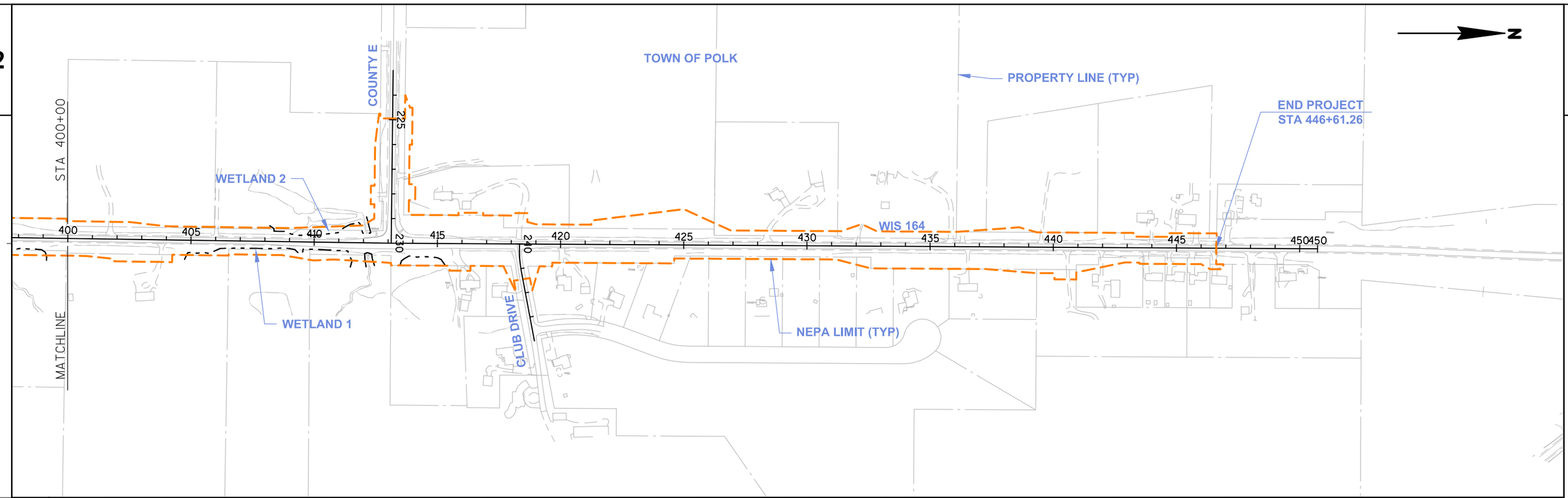

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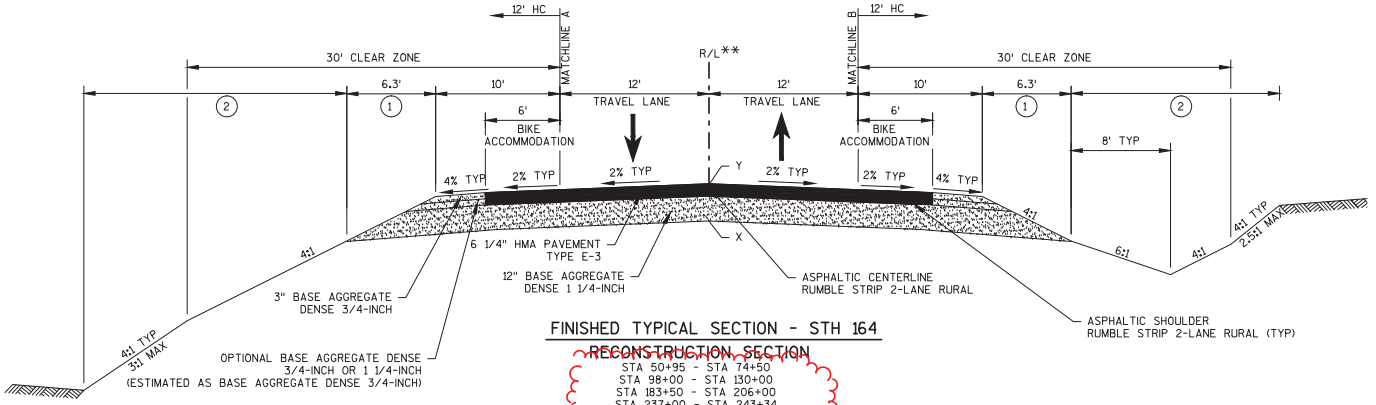
Attachment 7
Revised Proposed Typical Sections



FINISHED TYPICAL SECTION - STH 164

RECONSTRUCTION SECTION

STA 50+95 - STA 74+50
STA 98+00 - STA 130+00
STA 183+50 - STA 206+00
STA 237+00 - STA 243+34
STA 290+12 - STA 318+01

V=60 MPH

LEGEND

(1) SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

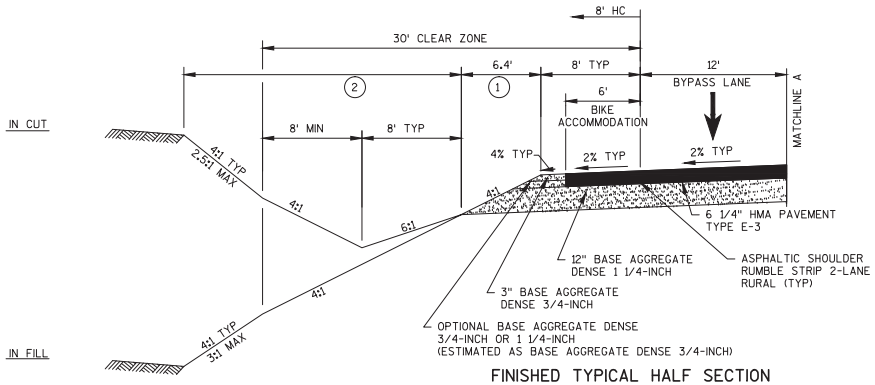
(2) SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH

** CENTERLINE OF CONSTRUCTION STA 290+12.20 TO STA 318+01.24 (STA 1290+11.74 TO STA 1318+01.95 ALONG CENTERLINE)

"X"= POINTS REFERRED TO ON CROSS SECTIONS

"Y"= POINTS REFERRED TO ON PROFILE

HC= HORIZONTAL CLEARANCE

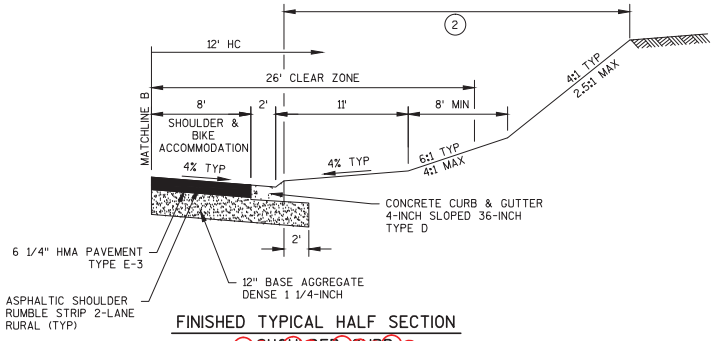


FINISHED TYPICAL HALF SECTION

BYPASS LANE

(MATCHLINE B IS A MIRROR IMAGE)

STA 129+34 - STA 130+00 RT
STA 183+50 - STA 190+78 LT
STA 237+00 - STA 238+03 RT
STA 239+29 - STA 240+00 RT
STA 1314+03 - STA 1318+02 RT



FINISHED TYPICAL HALF SECTION

SHOULDER CURB

(MATCHLINE A IS A MIRROR IMAGE)

STA 61+12 - STA 65+38 RT
STA 61+96 - STA 68+25 LT
STA 104+80 - STA 123+35 LT
STA 106+00 - STA 123+85 RT
STA 237+00 - STA 238+68 RT
STA 239+50 - STA 241+18 LT

PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____	E

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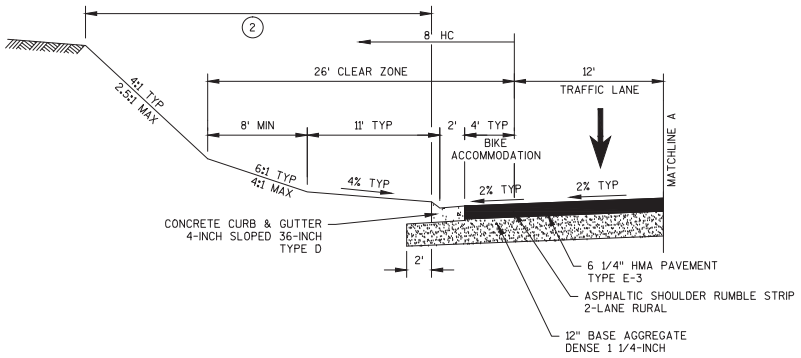
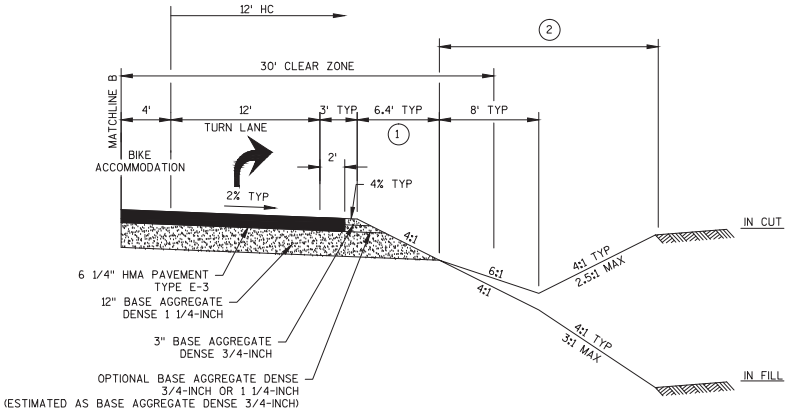


FINISHED TYPICAL HALF SECTION

BYPASS LANE WITH SHOULDER CURB

(MATCHLINE B IS A MIRROR IMAGE)
STA 58+40 - STA 61+12 RT
STA 238+68 - STA 243+34 RT



FINISHED TYPICAL HALF SECTION

RIGHT TURN LANE

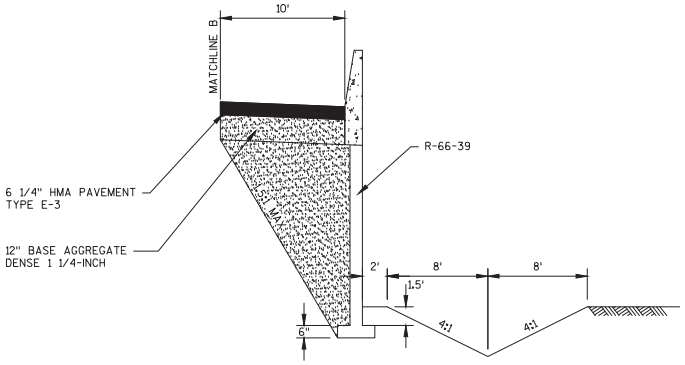
(MATCHLINE A IS A MIRROR IMAGE)
STA 68+25 - STA 70+88 RT
STA 72+39 - STA 74+50 LT
STA 98+00 - STA 98+89 LT
STA 183+50 - STA 185+89 RT
STA 192+25 - STA 198+25 RT
STA 199+61 - STA 204+45 LT
STA 237+00 - STA 239+50 LT
STA 1299+38 - STA 1302+00 RT
STA 1305+28 - STA 1310+28 LT

HC= HORIZONTAL CLEARANCE

LEGEND

(1) SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

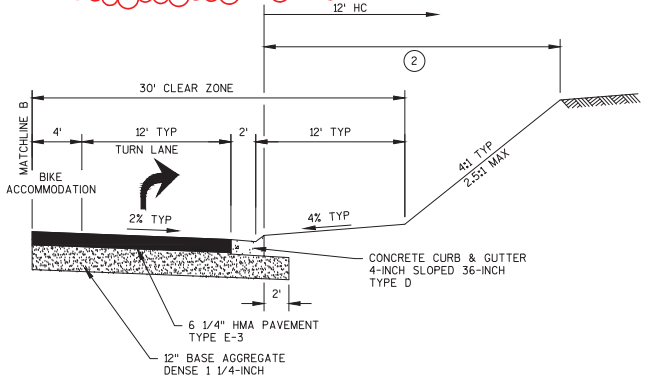
(2) SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH



FINISHED TYPICAL HALF SECTION

RETAINING WALL

STA 57+25 - STA 58+40 RT



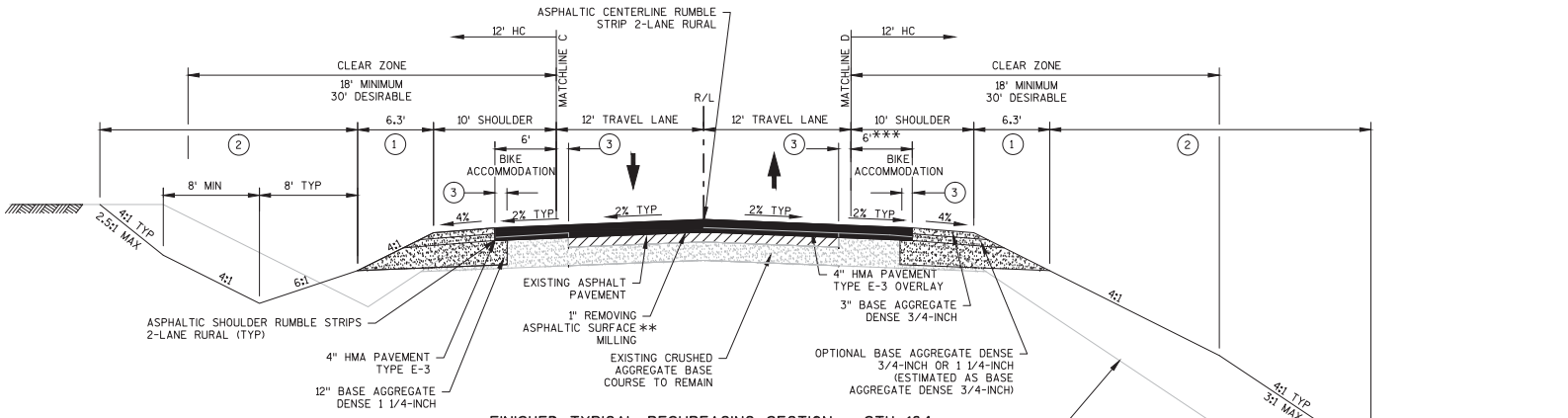
FINISHED TYPICAL HALF SECTION

RIGHT TURN LANE WITH SHOULDER CURB

(MATCHLINE A IS A MIRROR IMAGE)
STA 66+86 - STA 68+25 RT
STA 239+50 - STA 240+03 LT
STA 242+98 - STA 243+34 LT
STA 1302+00 - STA 1303+99 RT

PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____	E

FILE NAME : T:\1102717\CADD\CTYTL3D\27090300\SHEETSPLAN\020321_TS_PROP.DWG PLOT DATE : 9/3/2008 9:36 AM PLOT BY : BLACKWOOD, JAMES PLOT NAME : _____ PLOT SCALE : 1 IN=10 FT



FINISHED TYPICAL RESURFACING SECTION - STH 164

STA 74+50 - STA 98+00
STA 130+00 - STA 183+50
STA 206+00 - STA 237+00
STA 266+54 - STA 290+12
STA 318+01 - STA 400+17
STA 426+12 - STA 446+61
V=60 MPH

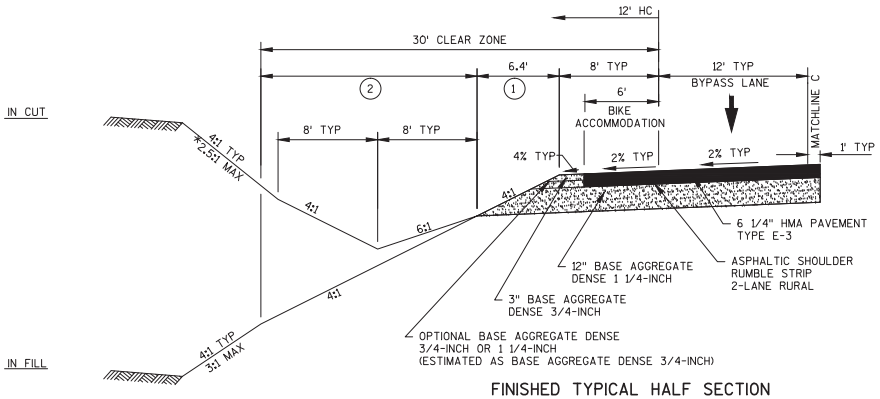
LEGEND

1. SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B
2. SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH
3. WIDTH VARIES 0'-4'. BEGIN FULL DEPTH PAVEMENT AT EXISTING EDGE OF PAVED SHOULDER
4. WIDTH VARIES 0'-5'. BEGIN FULL DEPTH PAVEMENT AT EDGE OF EXISTING PAVED SHOULDER

** REMOVE 1" AT REFERENCE LINE. PROFILE MILL PAVEMENT AT 2% CROSS SLOPE TO EXISTING EDGE OF PAVED SHOULDER SO THAT PAVEMENT CROWN IS LOCATED ON REFERENCE LINE

*** 10' STA 276+00 - STA 278+59

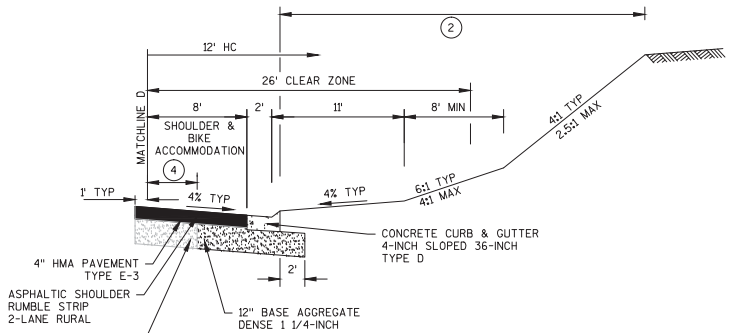
HC= HORIZONTAL CLEARANCE



FINISHED TYPICAL HALF SECTION BYPASS LANE

(MATCHLINE D IS A MIRROR IMAGE)

STA 130+00 - STA 137+26 RT
STA 153+31 - STA 161+23 RT
STA 164+26 - STA 172+70 LT
STA 182+35 - STA 183+50 LT
STA 228+15 - STA 233+23 LT
STA 234+05 - STA 237+00 RT
STA 278+09 - STA 286+01 RT
STA 318+01 - STA 322+02 RT



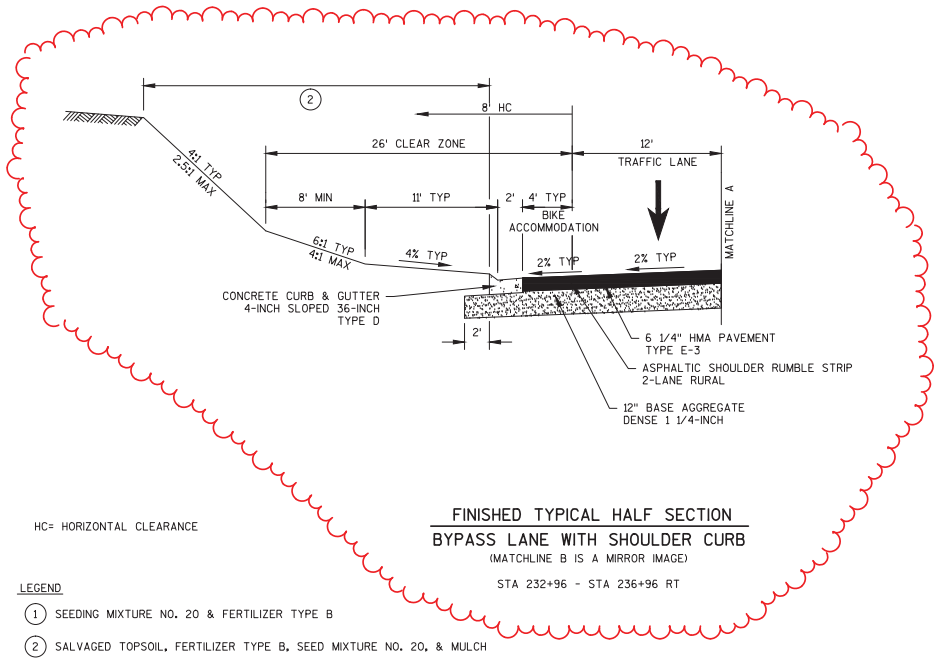
FINISHED TYPICAL HALF SECTION SHOULDER CURB

(MATCHLINE C IS A MIRROR IMAGE)

STA 217+95 - STA 219+40 LT
STA 224+00 - STA 227+00 RT
STA 236+96 - STA 237+00 RT
STA 323+50 - STA 326+00 RT
STA 328+00 - STA 331+50 LT

PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____	E

FILE NAME : T:\1102717\CADD\CTVL3D\27090300\SHEETSPLAN\020322_TS_PROP.DWG PLOT DATE : 9/3/2008 9:36 AM PLOT BY : BLACKWOOD, JAMES PLOT NAME : _____ PLOT SCALE : 1 IN=10 FT



FINISHED TYPICAL HALF SECTION

BYPASS LANE WITH SHOULDER CURB

(MATCHLINE B IS A MIRROR IMAGE)

STA 232+96 - STA 236+96 RT

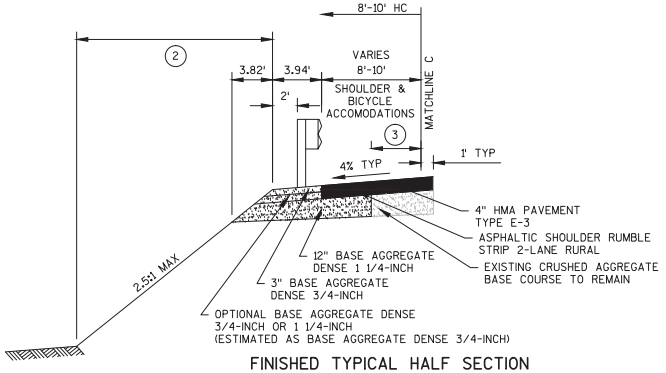
HC= HORIZONTAL CLEARANCE

LEGEND

(1) SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

(2) SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH

(3) WIDTH VARIES 3'-5'. BEGIN FULL DEPTH PAVEMENT AT EDGE OF EXISTING PAVED SHOULDER

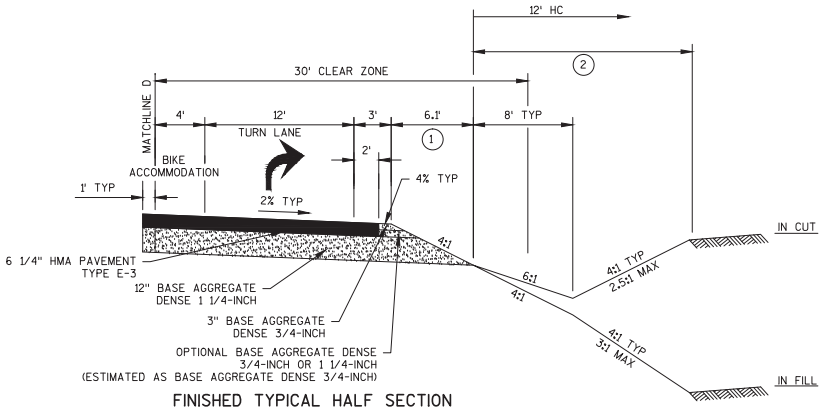


FINISHED TYPICAL HALF SECTION

BEAM GUARD SECTION

(MATCHLINE D IS A MIRROR IMAGE)

STA 266+54 - STA 268+88 RT
STA 266+93 - STA 270+11 LT
STA 393+46 - STA 397+83 LT
STA 395+34 - STA 397+06 RT

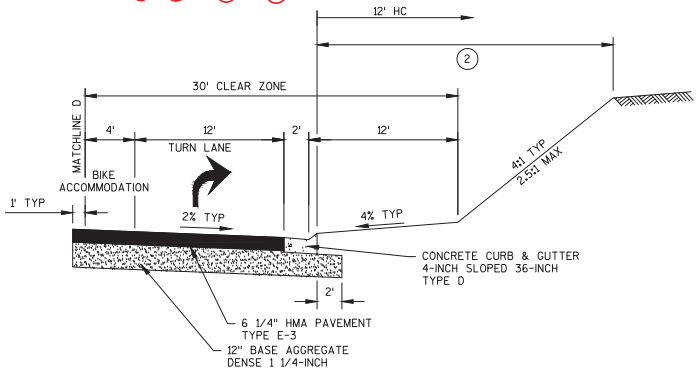


FINISHED TYPICAL HALF SECTION

RIGHT TURN LANE

(MATCHLINE C IS A MIRROR IMAGE)

STA 74+50 - STA 77+39 LT
STA 86+60 - STA 92+11 RT
STA 93+39 - STA 98+00 LT
STA 133+72 - STA 138+72 LT
STA 139+74 - STA 145+24 RT
STA 146+52 - STA 152+02 LT
STA 162+30 - STA 165+80 RT
STA 157+73 - STA 161+73 LT
STA 180+89 - STA 183+50 RT
STA 234+53 - STA 237+00 LT
STA 282+51 - STA 286+51 LT
STA 318+52 - STA 323+52 LT
STA 354+33 - STA 359+84 RT
STA 361+01 - STA 336+52 LT



FINISHED TYPICAL HALF SECTION

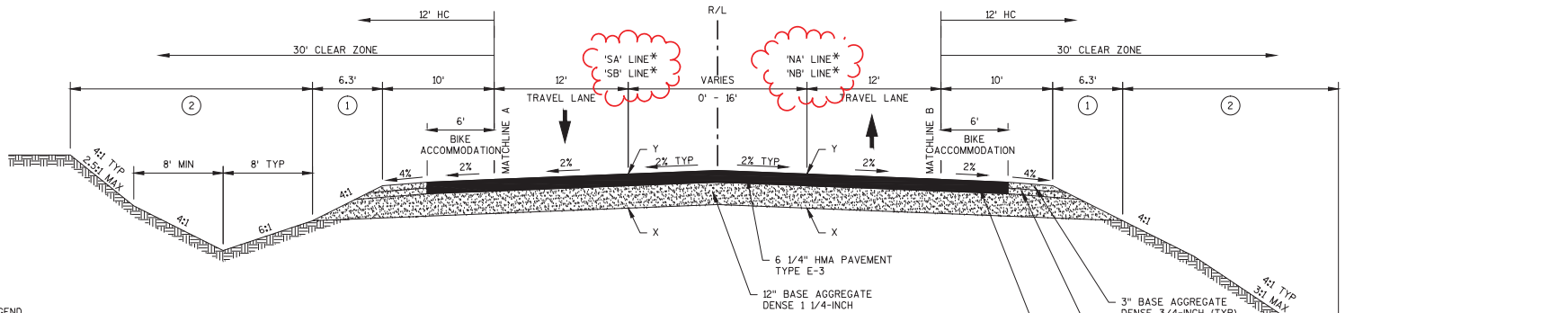
RIGHT TURN LANE WITH SHOULDER CURB

(MATCHLINE C IS A MIRROR IMAGE)

STA 165+80 - STA 167+80 RT
STA 227+00 - STA 231+65 RT

PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____ E

FILE NAME : T:\1102717\CADD\CTVTL30\27090300\SHEETSPLAN\020323_TS_PROP.DWG PLOT DATE : 9/3/2008 9:36 AM PLOT BY : BLACKWOOD, JAMES PLOT NAME : _____ PLOT SCALE : 1 IN=10 FT



LEGEND

(1) SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

(2) SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH

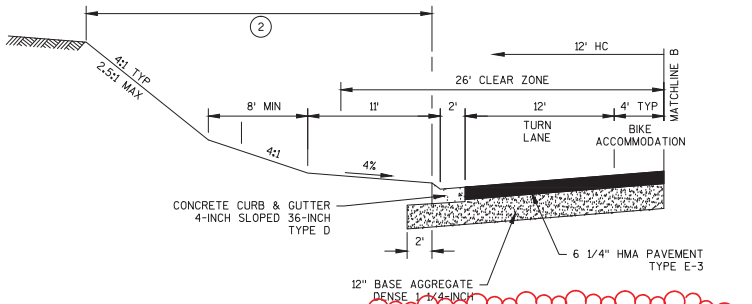
* NB PGL VARIES 6' LT TO 7' RT OF R/L
SB PGL VARIES 0' LT TO 22' LT OF R/L

** 8' STA 245+60'NA' - STA 246+82'NA' RT

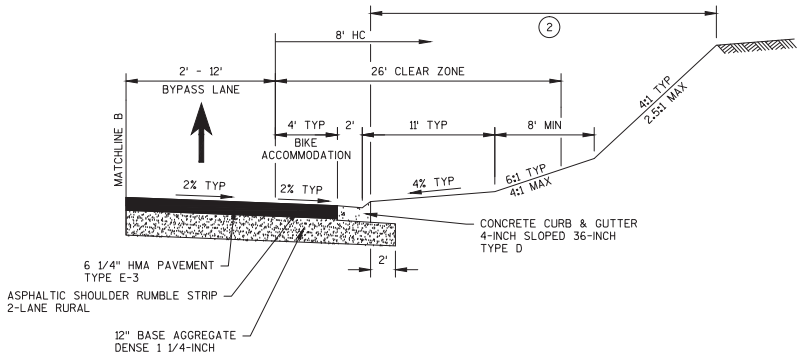
HC= HORIZONTAL CLEARANCE

FINISHED TYPICAL SECTION - STH 164

STA 243+34'NA' - STA 246+82'NA'
STA 243+34'SA' - 246+83'SA'
STA 257+48'NB' - STA 258+30'NB'
STA 257+49'SB' - STA 258+30'SB'
V=50 MPH



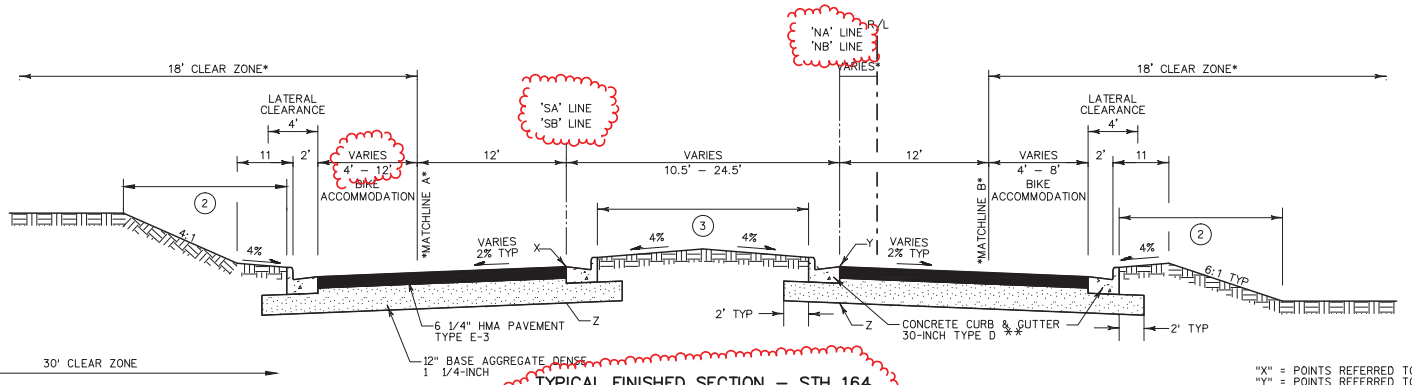
FINISHED TYPICAL HALF SECTION
RIGHT TURN LANE WITH SHOULDER CURB
(MATCHLINE A IS A MIRROR IMAGE)
STA 243+34'SA' - STA 246+83'SA' LT
STA 245+60'NA' - STA 246+82'NA' RT



FINISHED TYPICAL HALF SECTION
BYPASS LANE WITH SHOULDER CURB
STA 243+34'NA' - STA 245+60'NA' RT

PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____	E

FILE NAME : T:\1102717\CADD\CTYTL3D\27090300\SHEETSPLAN\020329_TS_PROP.DWG PLOT DATE : 9/3/2008 9:36 AM PLOT BY : BLACKWOOD, JAMES PLOT NAME : _____ PLOT SCALE : 1 IN:10 FT



TYPICAL FINISHED SECTION – STH 164
ROUNDABOUT SPLITTER ISLAND

STA 246+82'NA' - STA 251+34'NA'
STA 246+83'SA' - STA 251+31'SA'
STA 252+79'SB' - STA 257+49'SB'
STA 252+80'NB' - STA 257+48'NB'

"X" = POINTS REFERRED TO ON WB PROFILE
"Y" = POINTS REFERRED TO ON EB PROFILE
"Z" = POINTS REFERRED TO ON CROSS SECTIONS

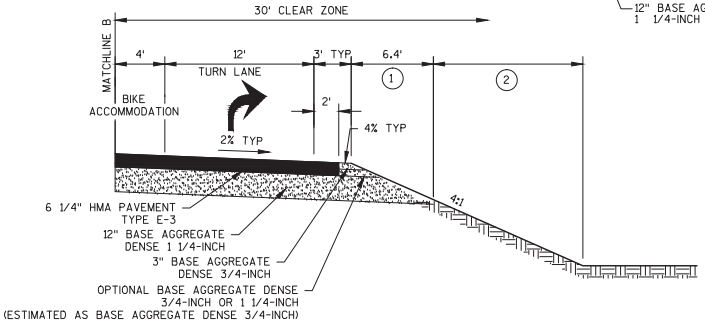
LEGEND

(1) SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

(2) SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH

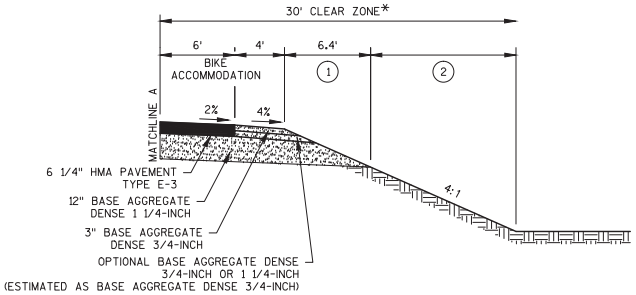
(3) SOD, FERTILIZER TYPE B AND TOPSOIL

* VARIES 18' LT TO 10.5' RT



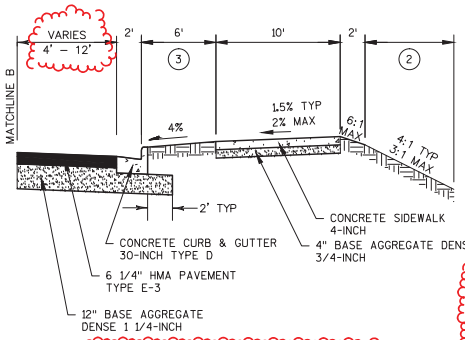
FINISHED TYPICAL HALF SECTION
RIGHT TURN LANE

STA 254+50'NB' - STA 257+48'NB'



FINISHED TYPICAL HALF SECTION
RURAL SHOULDER SECTION

STA 254+32'NB' - STA 254+50'NB' RT



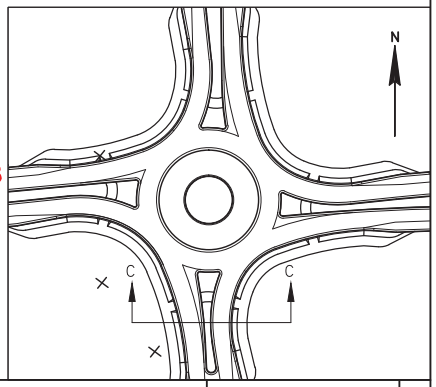
FINISHED TYPICAL HALF SECTION

(MATCHLINE A IS A MIRROR IMAGE)
STA 249+60'SA' - STA 251+31'SA' LT
STA 250+06'NA' - STA 251+34'NA' RT
STA 252+79'SB' - STA 254+09'SB' LT
STA 252+81'NB' - STA 254+12'NB' RT

* CLEAR ZONE VARIES

STATION	SIDE	CLEAR ZONE
246+83'SA' - 249+15'SA'	LT	18'
246+82'NA' - 248+78'NA'	RT	18'
254+30'SB' - 255+30'SB'	LT	28'
255+30'SB' - 257+49'SB'	LT	30'
254+30'NB' - 255+05'NB'	RT	28'
255+05'NB' - 257+48'NB'	RT	30'

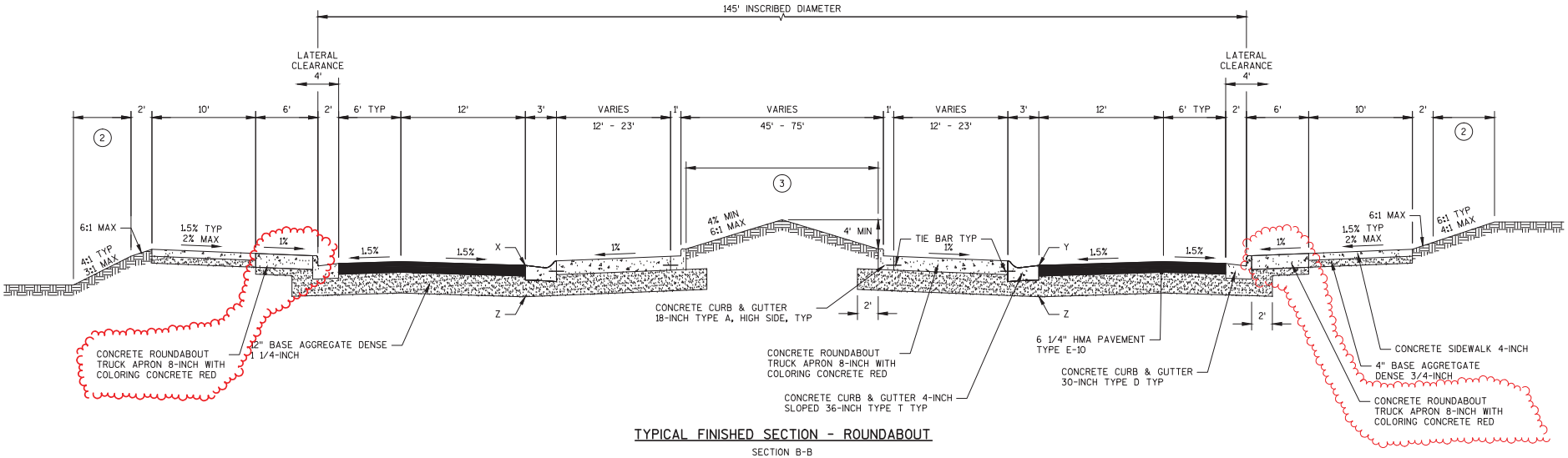
** CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D FROM STA 246+82'NA' TO STA 249+89'NA', STA 246+83'SA' TO STA 249+87'SA', STA 254+29'SB' TO 257+49'SB', AND STA 255+05'NB' TO STA 257+49'NB'



PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____ E

FILE NAME : T:\1102717\CADD\CIVIL3D\2709030O\SHEETSPLAN\020326A_TS_PROP.DWG PLOT DATE : 9/3/2008 9:36 AM PLOT BY : BLACKWOOD, JAMES PLOT NAME : _____ PLOT SCALE : 1" = 10' XREF

2



TYPICAL FINISHED SECTION - ROUNDABOUT

SECTION B-B

"X" = POINTS REFERRED TO ON WB PROFILE
"Y" = POINTS REFERRED TO ON EB PROFILE
"Z" = POINTS REFERRED TO ON CROSS SECTIONS

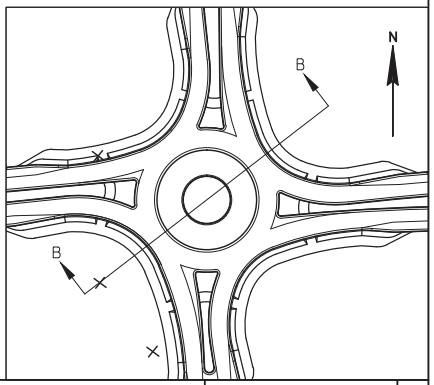
* CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D ON LOCATIONS SHOWN IN PAVING DETAILS

LEGEND

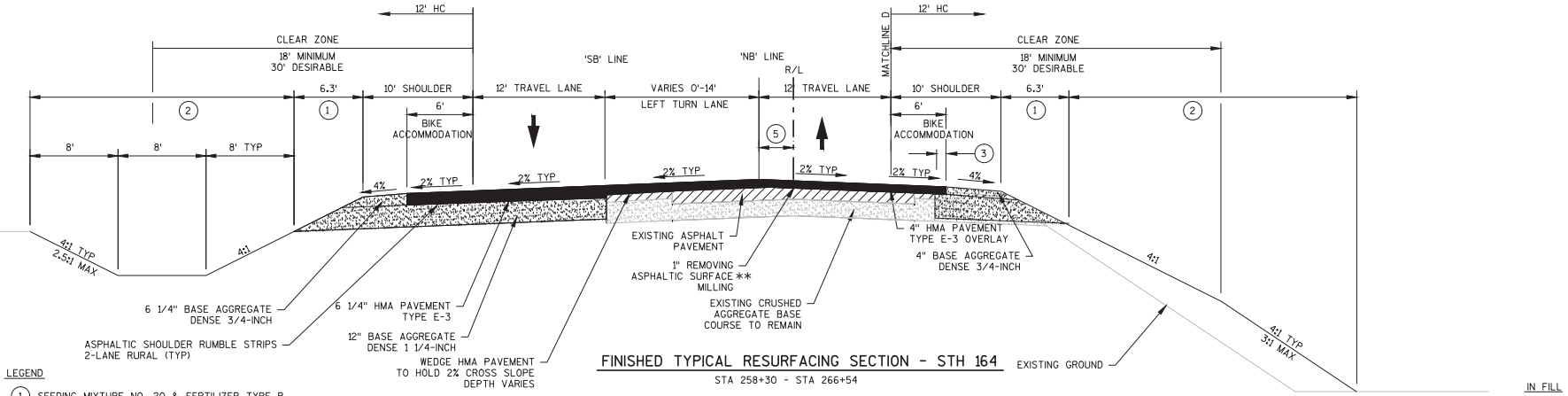
(1) SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

(2) SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH

(3) SOD LAWN, TOPSOIL AND FERTILIZER TYPE B



PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____	E



FINISHED TYPICAL RESURFACING SECTION - STH 164

STA 258+30 - STA 266+54

V=60 MPH

LEGEND

(1) SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

(2) SALVAGED TOPSOIL. FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH

(3) WIDTH VARIES 0'-4'. BEGIN FULL DEPTH PAVEMENT AT EXISTING EDGE OF PAVED SHOULDER

(4) WIDTH VARIES 0'-4'. BEGIN FULL DEPTH PAVEMENT AT EDGE OF EXISTING PAVED SHOULDER

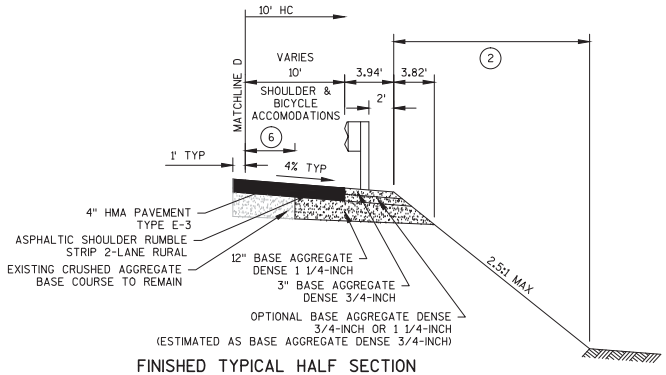
(5) WIDTH VARIES 0'-3.1'. SHIFT CROWN TO 'NB' LINE.

(5) WIDTH VARIES 4.1'-4.4'

** REMOVE 1" AT REFERENCE LINE. PROFILE MILL PAVEMENT AT 2% CROSS SLOPE TO EXISTING EDGE OF PAVED SHOULDER ON RIGHT SIDE ONLY.

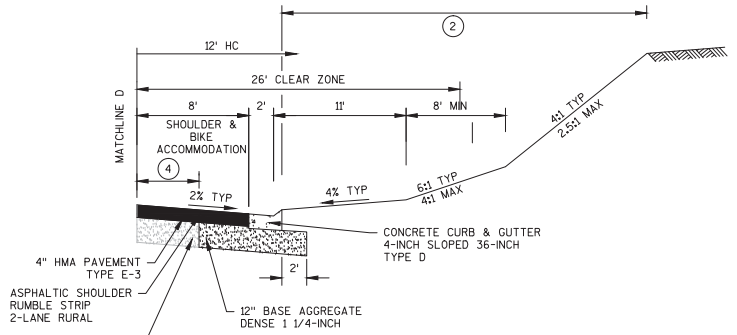
HC= HORIZONTAL CLEARANCE

NEW SHEET



FINISHED TYPICAL HALF SECTION
BEAM GUARD SECTION

STA 265+70 - STA 266+54 RT

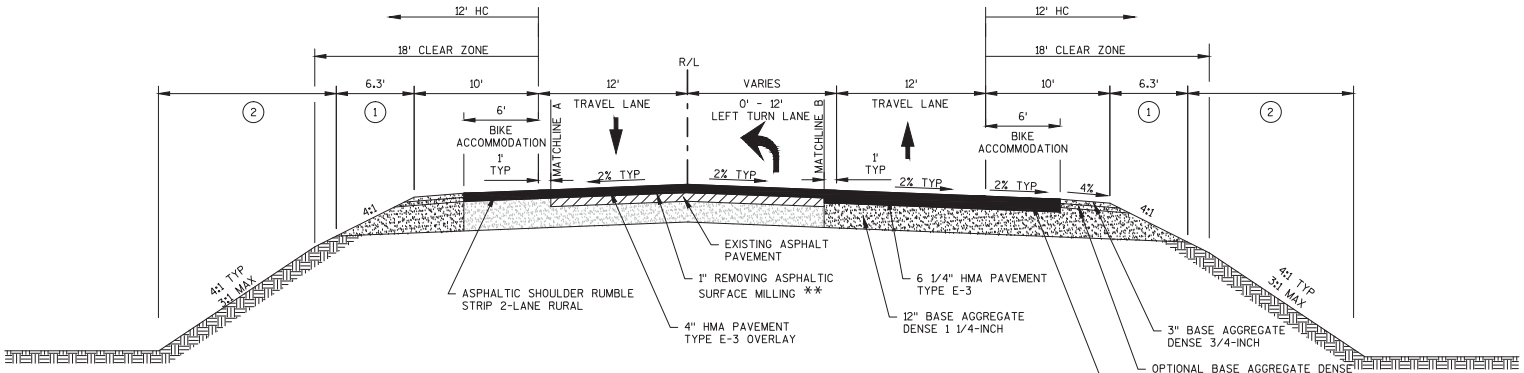


FINISHED TYPICAL HALF SECTION
SHOULDER CURB

STA 258+50 - 262+50 RT

PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____	E

FILE NAME : T:\1102717\CADD\CTVTL3D\27090300\SHEETSPLAN\020331_TS_PROP.DWG PLOT DATE : 9/3/2008 9:36 AM PLOT BY : BLACKWOOD, JAMES PLOT NAME : _____ PLOT SCALE : 1 IN=10 FT



FINISHED TYPICAL SECTION - STH 164

STA 400+17 - STA 426+12
V=60 MPH

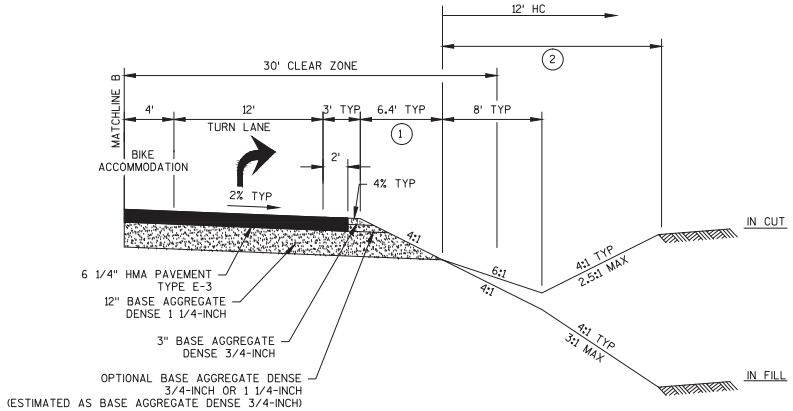
LEGEND

(1) SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

(2) SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH

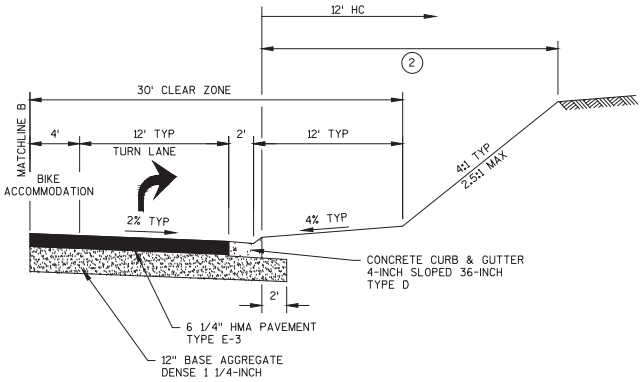
** REMOVE 1" AT REFERENCE LINE, PROFILE MILL PAVEMENT AT 2% CROSS SLOPE TO EXISTING EDGE OF PAVED SHOULDER SO THAT PAVEMENT CROWN IS LOCATED ON REFERENCE LINE

HC= HORIZONTAL CLEARANCE



FINISHED TYPICAL HALF SECTION
RIGHT TURN LANE

STA 412+65 - STA 416+25 RT
STA 413+78 - STA 422+74 LT

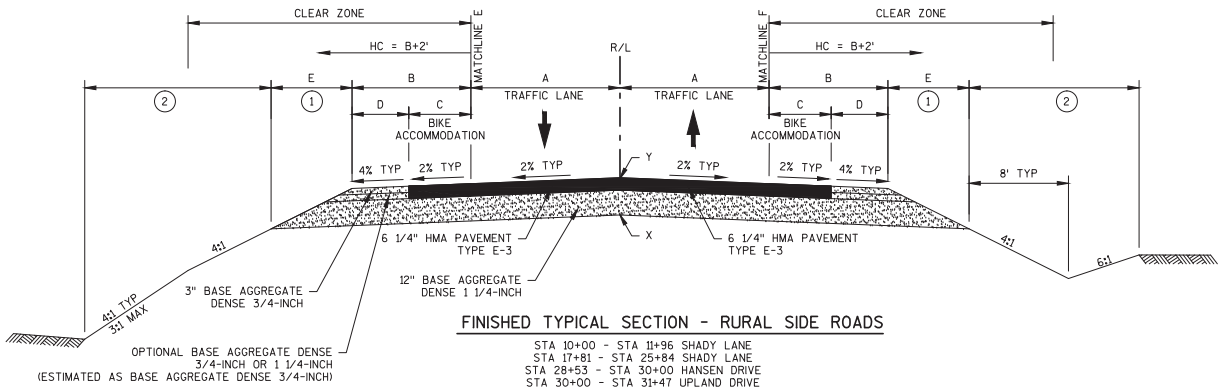


FINISHED TYPICAL HALF SECTION
RIGHT TURN LANE WITH SHOULDER CURB

(MATCHLINE A IS A MIRROR IMAGE)

PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____	E

FILE NAME : T:\1102717\CADD\CTVTL30\27090300\SHEETSPLAN\020328_TS_PROP.DWG PLOT DATE : 9/3/2008 9:36 AM PLOT BY : BLACKWOOD, JAMES PLOT NAME : _____ PLOT SCALE : 1 IN=10 FT



FINISHED TYPICAL SECTION - RURAL SIDE ROADS

STA 10+00 - STA 11+96 SHADY LANE
STA 17+81 - STA 25+84 SHADY LANE
STA 28+53 - STA 30+00 HANSEN DRIVE
STA 30+00 - STA 31+47 UPLAND DRIVE
STA 38+30 - STA 41+69 MONCHES ROAD
STA 48+56 - STA 50+00 WOODED HILLS BIBLE CHURCH
STA 58+31 - STA 61+69 ELMWOOD ROAD
STA 68+53 - STA 70+00 TUCKAWAY LANE
STA 80+00 + STA 81+54 CHEROKEE TRAIL
STA 90+00 - STA 93+23 ST GABRIEL LANE
STA 103+28 - STA 118+00 HUBERTUS ROAD
STA 138+52 - STA 140+00 LOCHVIEW ROAD
STA 188+58 - STA 190+00 GREYSTONE DRIVE
STA 197+04 - STA 200+40 PLEASANT HILL ROAD
STA 208+52 - STA 210+00 MAJESTIC DRIVE
STA 218+36 - STA 221+64 PIONEER ROAD
STA 224+95 - STA 230+00 CTH E
STA 240+00 - STA 241+44 CLUB DRIVE

LEGEND

(1) SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

(2) SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH

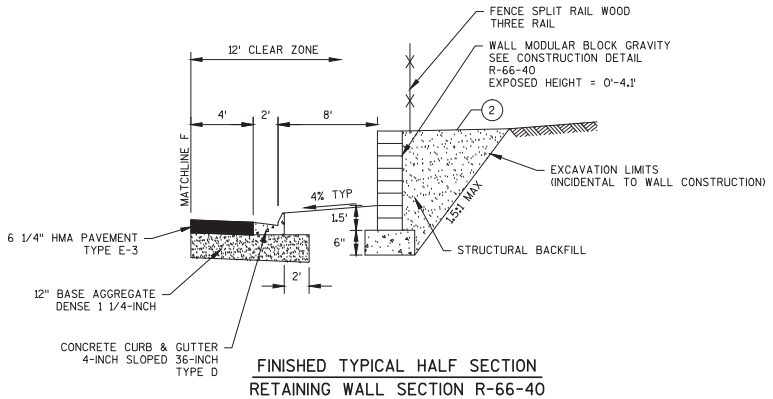
"X"= POINTS REFERRED TO ON CROSS SECTIONS

"Y"= POINTS REFERRED TO ON PROFILE

HC= HORIZONTAL CLEARANCE

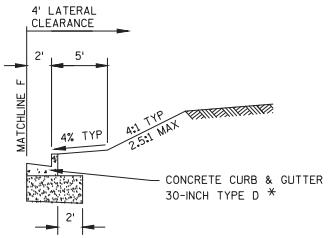
* USE CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE D ON HUBERTUS ROAD AND WOODED HILLS

ROADWAY	CLEAR ZONE	TYPICAL WIDTHS				
		A	B	C	D	E
SHADY LANE	10'	11'	3'	0'	3'	6.4'
UPLAND DRIVE	14'	11'	3'	0'	3'	6.4'
HANSEN DRIVE	10'	12'	3'	0'	3'	6.4'
MONCHES ROAD	14'	11'	3'	0'	3'	6.4'
WOODED HILLS BIBLE CHURCH	14'	12'	3'	0'	3'	6.4'
ELMWOOD ROAD	14'	11'	3'	0'	3'	6.4'
TUCKAWAY LANE	10'	11.5'	3'	0'	3'	6.4'
CHEROKEE TRAIL	10'	11'	3'	0'	3'	6.4'
ST GABRIEL LANE	14'	12'	3'	0'	3'	6.4'
HUBERTUS ROAD	14'	11'-16.5'	6'	5'	1'	6.5'
GOLDEN DRIVE	SEE URBAN TYPICAL SECTIONS					
LOCHVIEW ROAD	10'	11.5'	3'	0'	3'	6.4'
ADA'HI COURT	SEE URBAN TYPICAL SECTIONS					
STH 167	SEE STH 167 TYPICAL SECTIONS					
GREYSTONE DRIVE	10'	12'	3'	0'	3'	6.4'
PLEASANT HILL ROAD	10'	14'	N/A	0'	3'	6.4'
MAJESTIC DRIVE	10'	12'	3'	0'	3'	6.4'
PIONEER ROAD	16'	11'	3'	0'	3'	6.4'
CTH E	16'	12'	6'	5'	1'	6.5'
CLUB DRIVE	14'	11.5'	3'	0'	3'	6.4'



FINISHED TYPICAL HALF SECTION
RETAINING WALL SECTION R-66-40

STA 114+53 - STA 115+50 RT HUBERTUS ROAD



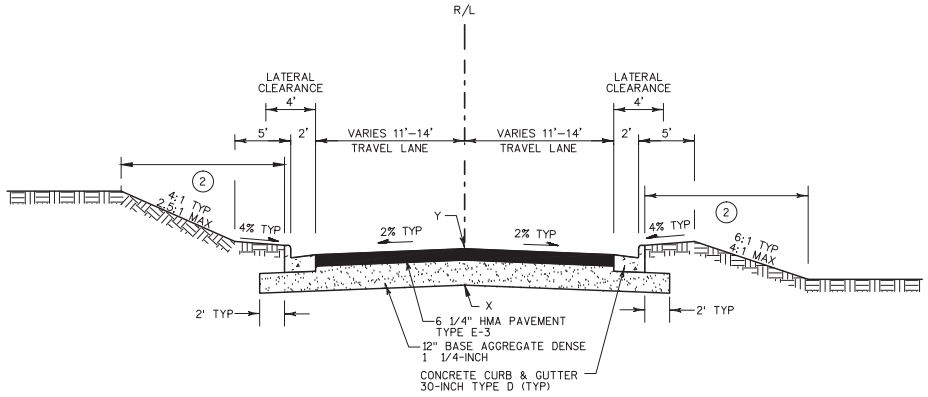
FINISHED TYPICAL HALF SECTION
SHOULDER CURB SECTION

(MATCHLINE E IS A MIRROR IMAGE)

STA 48+70 - STA 49+27 RT WOODED HILLS
STA 90+73 - STA 92+23 LT ST GABRIEL LANE
STA 113+25 - STA 114+85 LT HUBERTUS ROAD
STA 113+75 - STA 116+35 RT HUBERTUS ROAD

FILE NAME : T:\1102717\CADD\CTVTL3D\2709030O\SHEETSPLAN\020324_TS_PROP.DWG PLOT DATE : 9/3/2008 9:36 AM PLOT BY : BLACKWOOD, JAMES PLOT NAME : _____ PLOT SCALE : 1 IN=10 FT

2



TYPICAL FINISHED SECTION – URBAN SIDE ROADS

STA 130+00 - STA 133+00 GOLDEN DRIVE
STA 147+97 - STA 150+00 ADA'HI COURT

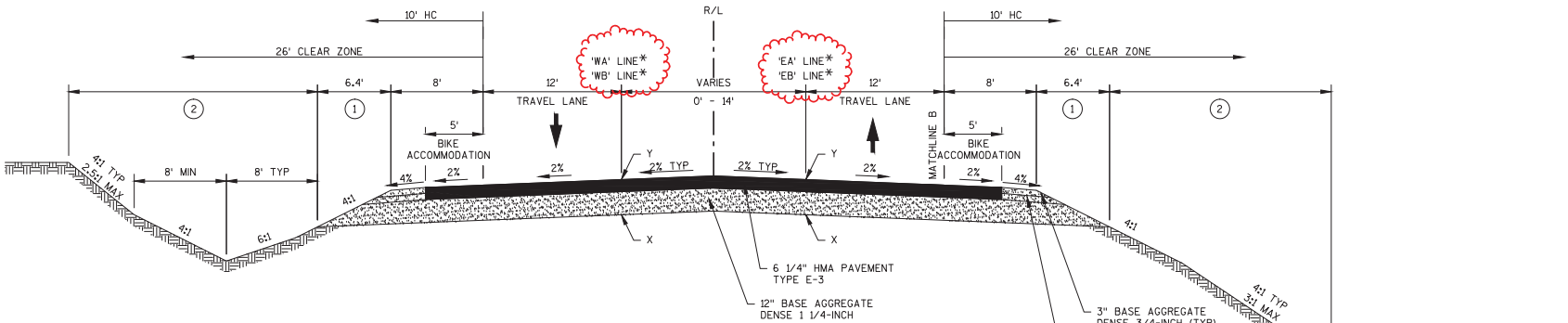
"X" = POINTS REFERRED TO ON WB PROFILE
"Y" = POINTS REFERRED TO ON EB PROFILE
"Z" = POINTS REFERRED TO ON CROSS SECTIONS

LEGEND

(2) SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH

PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____	E

2



LEGEND

(1) SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B

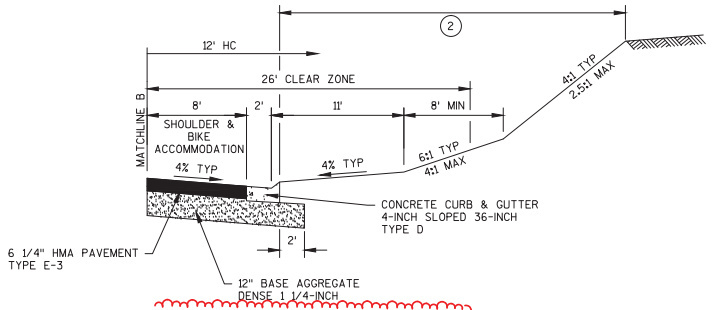
(2) SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH

* EB PGL VARIES 0' LT TO 21' LT
WB PGL VARIES 0' LT TO 35' LT

HC= HORIZONTAL CLEARANCE

FINISHED TYPICAL SECTION - STH 167

STA 158+75'EA' - STA 165+61'EA'
STA 158+75'WA' - STA 165+61'WA'
STA 174+04'EB' - STA 181+25'EB'
STA 174+05'WB' - STA 181+25'WB'
V=50 MPH

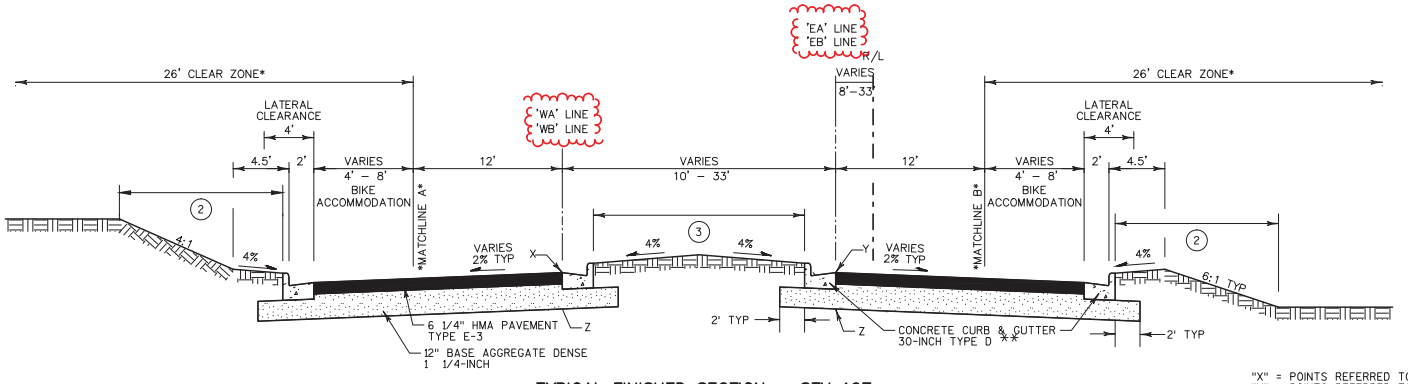


FINISHED TYPICAL HALF SECTION
SHOULDER CURB
STA 158+75'EA' - STA 165+56 'EA' RT

PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____	E

FILE NAME : T:\1102717\CADD\CTVTL30\2709030O\SHEETSPLAN\020330_TS_PROP.DWG PLOT DATE : 9/3/2008 9:36 AM PLOT BY : BLACKWOOD, JAMES PLOT NAME : _____ PLOT SCALE : 1 IN=10 FT

2



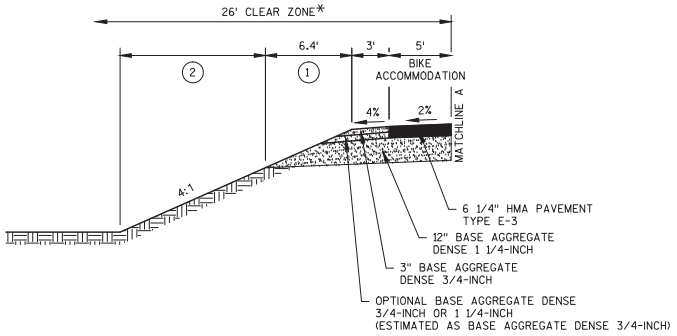
TYPICAL FINISHED SECTION – STH 167
ROUNDABOUT SPLITTER ISLAND

STA 165+61'EA' – STA 169+04'EA'
STA 165+61'WA' – STA 169+06'WB'
STA 170+51'EB' – STA 174+05'EB'
STA 170+49'WB' – STA 174+05'WB'

"X" = POINTS REFERRED TO ON WB PROFILE
"Y" = POINTS REFERRED TO ON EB PROFILE
"Z" = POINTS REFERRED TO ON CROSS SECTIONS

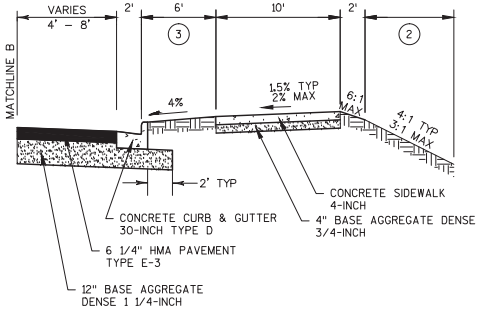
LEGEND

1. SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B
2. SALVAGED TOPSOIL, FERTILIZER TYPE B, SEED MIXTURE NO. 20, & MULCH
3. SOD, FERTILIZER TYPE B AND TOPSOIL



FINISHED TYPICAL HALF SECTION
RURAL SHOULDER SECTION

STA 165+61'WA' – STA 167+80'WA' LT



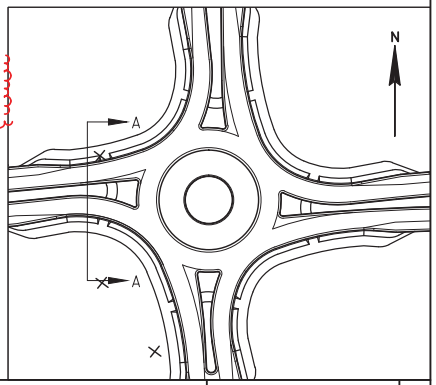
FINISHED TYPICAL HALF SECTION

(MATCHLINE A IS A MIRROR IMAGE)
STA 167+74'EA' – STA 169+04'EA' RT
STA 167+99'WA' – STA 169+06'WA' LT
STA 170+49'WB' – STA 171+80'WB' LT
STA 170+51'EB' – STA 171+69'EB' RT

* CLEAR ZONE VARIES

STATION	SIDE	CLEAR ZONE
165+61'WA' – 166+80'WA'	LT	26'
166+80'WA' – 167+80'WA'	LT	16'
165+61'EA' – 166+55'EA'	RT	26'
166+55'EA' – 167+55'EA'	RT	18'

** CONCRETE CURB & GUTTER 4–INCH SLOPED 36–INCH TYPE D FROM STA 165+61'WA' – STA 166+96'WA' LT AND STA 165+61'EA' – STA 167+56'EA' RT



PROJECT NO: 2709-03-70	HWY: STH 164	COUNTY: WASHINGTON	TYPICAL SECTION	SHEET _____	E

FILE NAME : T:\1102717\CADD\CTVTL3D\2709030O\SHEETSPLAN\020326_TS_PROP.DWG PLOT DATE : 9/3/2008 9:36 AM PLOT BY : BLACKWOOD, JAMES PLOT NAME : _____ PLOT SCALE : 1" = 10' XREF